

CURRICULUM VITAE MAN-WAI CHU

My research focuses on using interactive digital assessments to measure performance-based skills. I am particularly interested in the possibility that these tools may be used in standardized testing situations to measure skills that are traditionally restricted to classroom-based assessments. The ability to standardize performance-based assessments is important because it provides educators with a tool to ensure that all students have achieved a level of competency. This form of innovative educational assessment may provide a gateway towards skills-based measures.

Personal Information

Position: Associate Professor
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Education

Doctor of Philosophy June 2017
Center for Research in Applied Measurement and Evaluation
Educational Psychology
University of Alberta, Edmonton, Alberta
Dissertation: Mining Evidence of Higher-Level Thinking on an Embedded (Stealth)
Assessment in Science: A Test of Pre-laboratory Activities and the LEAFF
Model
Supervisor: Dr. Jacqueline P. Leighton

Master of Education November 2008
Secondary Education
University of Alberta, Edmonton, Alberta
Thesis: Exploring Science Curriculum Emphases in Relation to the Alberta Physics
Program-of-Study
Supervisor: Dr. Gregory P. Thomas

Bachelor of Science June 2005
Mathematics and Physical Sciences
University of Alberta, Edmonton, Alberta

Bachelor of Education June 2005
Secondary Education
University of Alberta, Edmonton, Alberta

Scholarly Productivity

Publications

Refereed Scholarly Publications (Number of articles: 27; Number of first author articles: 10)

29. **Chu, M-W.**, Craig, H., & Hoey, F. (2024). *Student perceptions of performance-based assessments for in-person and online courses*. *Alberta Journal of Educational Research*, 70(2), 165–181. <https://doi.org/10.55016/ojs/ajer.v70i2.73401>
28. Dressler, R., Guida, R., & **Chu, M-W.** (2023). Canadian second language teachers' technology use following the COVID-19 pandemic. *Canadian Modern Language Review*, 79(3), 228-246. <https://doi.org/10.3138/cmlr-2022-0069>
27. Hachem, M., Gorgun, G., Chu, M-W., & Bulut, K. (2022). Social and emotional variables as predictors of students' perceived cognitive competence and academic performance. *Canadian Journal of School Psychology*. <https://doi.org/10.1177/08295735221118474>
26. Brown, B., Friesen, S., Mosher, R., **Chu, M-W.**, & Linton, K. (2021). Adapting to a design-based professional learning intervention. *Educational Design Research*, 5(2). <https://doi.org/10.15460/eder.5.2.1658>
25. Guo, Q., Cui, Y., Leighton, J.P., & **Chu, M-W.** (2021). Sequence clustering techniques in educational data mining. In M. Khowrow-Pour, *Handbook of research on modern educational technologies, applications, and management* (pp. 68-84). IGI Global Disseminator of Knowledge. <https://doi.org/10.4018/978-1-7998-3476-2.ch005>
24. Chen, F., Cui, Y., & **Chu, M-W.** (2020). Utilizing game analytics to inform and validate digital game-based assessment with evidence-centered game design: A case study. *International Journal of Artificial Intelligence in Education*, 30(3), 481-503. <https://doi.org/10.1007/s40593-020-00202-6>
23. **Chu, M-W.**, Craig, H., Yeworiew, L. B., & Xu, Y. (2020). Teachers' unpreparedness to accommodate student needs. *Canadian Journal of School Psychology*, 35(5), 210-224. <https://doi.org/10.1177/0829573520916610>
22. **Chu, M-W.**, Brown, B., & Friesen, S. (2020). Psychometric properties of the design-based professional learning for teachers survey. *Professional Development in Education*, 1-17. <https://doi.org/10.1080/19415257.2019.1709219>
21. **Chu, M-W.**, & Fowler, T. A. (2020). Gamification of formative feedback in classrooms. *International Journal of Game-Based Learning*, 10(1), 1-18. <https://doi.org/10.4018/IJGBL.2020010101>
20. Cui, Y., **Chu, M-W.**, & Chen, F. (2019). Analyzing student process data in game-based assessments with Bayesian knowledge tracing and dynamic Bayesian network. *Journal of Educational Data Mining*, 11(1), 80-100. <https://doi.org/10.5281/zenodo.3554751>
19. **Chu, M-W.**, & Leighton, J. P. (2019). Enhancing digital simulated laboratory assessments: A test of pre-laboratory activities with the learning error and formative feedback model. *Journal of Science Education and Technology*, 28, 251-264. <https://doi.org/10.1007/s10956-018-9763-z>
18. Cui, Y., Guo, Q., Leighton, J. P., **Chu, M-W.** (2019). Log data analysis with ANFIS: A fuzzy neural network approach. *Journal of International Testing*, 20(1), 78-96. <https://doi.org/10.1080/15305058.2018.1551225>
17. Dressler, R., **Chu, M-W.**, Crossman, K., & Hilman, B. (2019). Quantity and quality of uptake: Examining surface and meaning-level feedback provided by peers and an

- instructor in a graduate research course. *Assessing Writing*, 39(1), 14-24.
<https://doi.org/10.1016/j.asw.2018.11.001>
16. Tweedie, M. G., & **Chu, M-W.** (2019). Challenging equivalency in measures of English language proficiency for university admission: Data from an undergraduate engineering programme. *Studies in Higher Education*, 44(4), 683-695.
<https://doi.org/10.1080/03075079.2017.1395008>
 15. **Chu, M-W.**, & Fung, K. (2018). Relationships between the ways students are assessed in science classrooms and science achievement across Canada. *Research in Science Education*, 50(2), 791-812. <https://doi.org/10.1007/s11165-018-9711-1>
 14. **Chu, M-W.**, & Chiang, A. (2018). Raging skies: Development of a digital game-based science assessment using evidence-centered game design. *Alberta Journal of Science Education*, 45(2), 37-47.
<https://sc.teachers.ab.ca/SiteCollectionDocuments/ASEJVol45No2March2018.pdf>
 13. Scott, D., Smith, C., **Chu, M-W.**, & Friesen, S. (2018). Examining the efficacy of inquiry-based approaches to education. *Alberta Journal of Educational Research*, 64(1), 35-54.
<https://cdm.ucalgary.ca/index.php/ajer/article/view/56439>
 12. Leighton, J. P., Guo, Q., **Chu, M-W.**, & Tang, W. (2017). A pedagogical alliance for academic achievement: Socio-emotional effects on assessment outcomes. *Educational Assessment*, 23(1), 1-23. <https://doi.org/10.1080/10627197.2017.1411188>
 11. Leighton, J. P., Seitz, P., **Chu, M-W.**, & Bustoz Gomez, M. C. (2016). Operationalizing the role of trust for student wellbeing, learning and achievement. *International Journal of Wellbeing*, 6(2), 57-79. <http://dx.doi.org/10.5502/ijw.v6i2.467>
 10. Shute, V., Leighton, J. P., Jang, E. E., & **Chu, M-W.** (2016). Advances in the science of assessment. *Educational Assessment*, 21(1), 34-59.
<https://doi.org/10.1080/10627197.2015.1127752>
 9. Durksen, T. L., **Chu, M-W.**, Ahmad, Z. F., Radil, A. I., & Daniels, L. M. (2016). Motivation in a MOOC: A probabilistic analysis of online learners' basic psychological needs. *Social Psychology of Education: An International Journal*, 19(2), 241-260.
<https://doi.org/10.1007/s11218-015-9331-9>
 8. Fung, K., & **Chu, M-W.** (2015). Fairness of standardized assessments: Discrepancy between provincial and territorial results. *Journal of Contemporary Issues in Education*, 10(1), 2-24. <https://doi.org/10.20355/C5KGG6P>
 7. Leighton, J. P., & **Chu, M-W.** (2015). First among equals: Hybridization of cognitive diagnostic assessment and evidence-centered game design. *International Journal of Testing*, 16(2), 164-180. <https://doi.org/10.1080/15305058.2015.1107075>
 6. **Chu, M-W.**, Babenko, O., Cui, Y., & Leighton, J. P. (2014). Using HLM to explore the effects of perceptions of learning environments and assessments on students. *International Journal of Testing*, 14(2), 95-121.
<https://doi.org/10.1080/15305058.2013.841702>
 5. **Chu, M-W.**, Guo, Q., Leighton, J. P. (2014). Students' interpersonal trust and attitudes towards standardized tests: Exploring affective variables related to student assessment. *Assessment in Education: Principles, Policy & Practice*, 21(2), 167-192.
<https://doi.org/10.1080/0969594X.2013.844094>
 4. Roduta Roberts, M., Alves, C. B., **Chu, M-W.**, Thompson, M., Bahry, L. M., & Gotzmann, A. (2014). Testing expert-based versus student-based cognitive models for a grade 3

- diagnostic mathematics assessment. *Applied Measurement in Education*, 27(3), 173-195. <https://doi.org/10.1080/08957347.2014.905787>
3. Gee, D., **Chu, M-W.**, Blimke, S., Rockwell, G., Gouglas, S., Holmes, D., & Lucky, S. (2014). Assessing serious games: The GRAND assessment framework. *Digital Studies /Le champ numérique.* <http://dx.doi.org/10.11575/PRISM/35635>
 2. **Chu, M-W.**, & Lai, H. (2013). Detecting biased items using CATSIB to increase fairness in computer adaptive tests. *Alberta Journal of Educational Research*, 59(4), 630-643. <https://journalhosting.ucalgary.ca/index.php/ajer/article/view/55750>
 1. **Chu, M-W.** (2012). Exploring science curriculum emphases in relation to the Alberta physics program-of-study. *Alberta Journal of Educational Research*, 58(1), 82-105. <https://doi.org/10.7939/R36S5J>

Refereed Book Chapters (Number of book chapters: 2, Number of first author book chapters:

- 1)
2. **Chu, M-W.**, & Leighton, J. P. (2016). Using errors to enhance learning and feedback in computer programming. In S. Tettegah & M. P. McCreery (Eds.), *Emotions, technology, and learning* (pp.89-117). London Wall, London: Elsevier Incorporated.
1. Leighton, J.P., **Chu, M-W.**, & Seitz, P. (2013). Cognitive diagnostic assessment and the learning errors and formative feedback (LEAFF) model. In R. Lissitz (Ed.), *Informing the practice of teaching using formative and interim assessment: A systems approach* (pp. 183-207). Information Age Publishing.

Refereed Invited Publications (Number of publications: 1, Number of first author publications:

- 1)
1. **Chu, M-W.**, & Leighton, J. P. (2013, November). Innovation in testing: Assessment of innovative problem solving skills. *The Newsletter of the Canadian Educational Researchers' Association*.

Non-Refereed Media Publications/Activities (Number of publications/activities: 4, Number of first author publications/activities: 3)

4. **Chu, M-W.**, (2019, September). Why standardized tests are a controversial subject for Alberta schools In Joe McFarland's Alberta Matters Radio Program. <https://globalnews.ca/news/5844773/alberta-matters-standardized-tests-controversy-education/>
3. **Chu, M-W.**, Aston, R., Farrell, D., Tate, S., & Hlousek, C. (2019, March). Aligning curriculum and assessment. *Canadian Assessment for Learning Network Newsletter*. <http://caflnforum.ca/newsletter/>
2. **Chu, M-W.** (2017). Why Canada fails to be an education superpower. *The Conversation*. <https://theconversation.com/why-canada-fails-to-be-an-education-superpower-82558>
1. Delos Santos, J., **Chu, M-W.**, & Shanahan, M.-C. (2017). Secondary science outdoors: How high school science teachers include outdoor activities in their lessons. *Green Teacher*, 1(113), 12-14. <https://greenteacher.com/secondary-science-outdoors/>

Non-Refereed Publications (Number of publications: 2, Number of first author publications: 2)

2. **Chu, M-W.** (2017, March). *Using computer simulated science laboratories: A test of pre-laboratory activities with the learning error and formative feedback model*. Unpublished doctoral dissertation, University of Alberta, Edmonton, Canada.
1. **Chu, M-W.** (2010, August). *Exploring science curriculum emphases in relation to the Alberta physics program-of-study*. Unpublished master's thesis, University of Alberta, Edmonton, Canada.

Refereed Scholarly Articles Submitted for Publication (Number of publications:2)

2. Athwal, T., Sullivan, E., & **Chu, M-W.** (2022). *English as an additional language learners in chemistry – A literature review*. [Manuscript submitted for publication]. Department of Science, University of Calgary.
1. **Chu, M-W.**, Wilcox, G., Jones, K., & Young, J. (2022). *Authentic assessments: A means to motivate students to higher cognition* [Manuscript submitted for publication]. Department of Education, University of Calgary.

Presentations

Refereed International Presentations (Number of presentations: 40, Number of first author presentations: 21)

42. **Chu, M-W.**, Shanahan, M-C., Giers, D. H., & Giers, B. (2024, April 11-14) *Bi/multilingual learners' use of science simulation assessments* [Paper presentation]. American Educational Researchers Association annual conference, Philadelphia, PA, UNITED STATES
41. Waatainen, P. & **Chu, M-W.** (2022, December 2-4). *A situated lens to designing assessments of citizenship competency* [Paper presentation]. National Council of the Social Studies, Philadelphia, PA. UNITED STATES
40. Friesen, S., **Chu, M-W.**, Tay, M., Hachem, M., & Hunter, D. (2021, April 9-12). *Using structural equation modeling to explore the implementation of the teaching quality standard in Alberta, Canada* [Paper session]. American Educational Researchers Association annual conference, online.
39. Fung, K., & **Chu, M-W.** (2021, April 9-12). *Using propensity score matching to compare questionnaire responses between two large-scale assessments* [Poster session]. American Educational Researchers Association annual conference, online.
38. Hladik, S., **Chu, M-W.**, & Shanahan, M-C. (2021, April 9-12). *Evidence-centered design for digitally simulated laboratory assessments* [Poster session]. American Educational Researchers Association annual conference, online.
37. **Chu, M-W.**, Cui, Y., Shojaee, M., Hachem, M., Guo, Q., & Chen, F. (2020, September 9-11). Validity of process-based competency outcome claims using think-a-loud data and evidence-trace files. In M-W. Chu (Chair), *Analyzing students' process data in a science game-based assessment* [Symposium]. National Council on Measurement in Education, San Francisco, CA, United States. (Conference Canceled)
36. Cui, Y., **Chu, M-W.**, Chen, F., & Guo, Q. (2020, September 9-11). Analyzing student process data with Bayesian knowledge tracing and dynamic Bayesian network. In M-W. Chu (Chair), *Analyzing students' process data in a science game-based assessment* [Symposium]. National Council on Measurement in Education, San Francisco, CA, United States. (Conference Canceled)

35. Guo, Q., Chen, F., **Chu, M-W.**, & Cui, Y. (2020, September 9-11). Detection of aberrant response patterns using discrete variational autoencoder. In M-W. Chu (Chair), *Analyzing students' process data in a science game-based assessment* [Symposium]. National Council on Measurement in Education, San Francisco, CA, United States. (Conference Canceled)
34. Chen, F., Guo, Q., Cui, Y., & **Chu, M-W.** (2020, September 9-11). Utilizing game analytics to inform digital game-based assessment design. In M-W. Chu (Chair), *Analyzing students' process data in a science game-based assessment* [Symposium]. National Council on Measurement in Education, San Francisco, CA, United States. (Conference Canceled)
33. Ostrodun, C., **Chu, M-W.**, Takeuchi, M., & Lock, J. (2020, April 17-20). *What's in a word? How preservice teachers understand inclusion across contexts* [Paper presentation]. American Educational Researchers Association Conference, San Francisco, CA, United States. <http://tinyurl.com/tvf43x4> (Conference Canceled)
32. **Chu, M-W.**, Craig, H., Yeworiew, L. B., Xu, Y. (2019, April 5-9). *Unprepared to accommodate special education: Students' unmet needs* [Paper presentation]. American Educational Researchers Association Conference, Toronto, ON, Canada.
31. Ostrowski, C., **Chu, M-W.**, Lock, J., & Takeuchi, M. (2019, April 5-9). *Understanding preservice teachers' conceptualizations of disability and inclusion through visual representations* [Paper presentation]. American Educational Researchers Association Conference, Toronto, ON, Canada.
30. Yeworiew, L. B., Xu, Y., **Chu, M-W.** (2019, April 5-9). *The role of homework on Canadian grade eight students' achievement in mathematics*. In M-W. Chu (Chair), *Canadian educational researchers' association symposium at American educational researchers association* [Symposium]. American Educational Researchers Association Conference, Toronto, ON, Canada.
29. **Chu, M-W.**, & Seitz, P. (2018, July 2-5). *Shifts to standardized testing in Canada* [Paper presentation]. International Test Commission Bi-Annual Conference, Montreal, QC, Canada.
28. **Chu, M-W.**, Brown, B., & Friesen, S. (2018, July 2-5). *Construct Validity Evidence of the Design-based Professional Learning for Teacher Leaders Survey* [Paper presentation]. International Test Commission Bi-Annual Conference, Montreal, QC, Canada.
27. **Chu, M-W.**, & Fowler, T. A. (2018, June 23-27). *Increasing the use of formative feedback: Utilizing game-based principles* [Poster presentation]. International Conference of the Learning Sciences, London, UK, England.
26. **Chu, M-W.**, Leighton, J. P., Guo, Q., & Cui, Y. (2018, April 12-16). The use of digitally simulated laboratories as educational assessment tools. In M-W. Chu (Chair), *Digitally simulated science laboratory assessments: Differential approaches for analyzing log data* [Symposium]. National Council on Measurement in Education, New York, NY, United States.
25. Leighton, J. P., **Chu, M-W.**, Cui, Y., & Guo, Q. (2018, April 12-16). Adding value to diagnostic test-based inferences: The case for socio-emotional inputs. In M-W. Chu (Chair), *Digitally simulated science laboratory assessments: Differential approaches for analyzing log data* [Symposium]. National Council on Measurement in Education, New York, NY, United States.

24. Guo, Q., Cui, Y., **Chu, M-W.**, & Leighton, J. P. (2018, April 12-16). Use Bayesian networks to analyze logfile data and compare with NAEP TRESim results. In M-W. Chu (Chair), *Digitally simulated science laboratory assessments: Differential approaches for analyzing log data* [Symposium]. National Council on Measurement in Education, New York, NY, United States.
23. Cui, Y., Guo, Q., Leighton, J. P., & **Chu, M-W.** (2018, April 12-16). Logdata feature extraction with adaptive-subspace self-organizing map: A neutral network approach. In M-W. Chu (Chair), *Digitally simulated science laboratory assessments: Differential approaches for analyzing log data* [Symposium]. National Council on Measurement in Education, New York, NY, United States.
22. **Chu, M-W.**, & Leighton, J. P. (2018, April 13-17). *Enhancing digitally simulated science laboratory experiences using a pre-laboratory activity and learning error intervention* [Paper presentation]. American Educational Researchers Association Conference, New York, NY, United States.
21. **Chu, M-W.**, Dressler, R., Hilman, B., & Crossman, K. (2018, April 13-17). *Uptake of peer and instructor feedback in an online graduate course: Learning and instructional implications* [Paper presentation]. American Educational Researchers Association Conference, New York, NY, United States.
20. Dressler, R., **Chu, M-W.**, Crossman, K., & Hilman, B. (2017, October 11-14). *Peer and instructor feedback in an academic graduate writing course: Exploring an underexplored area of SoTL* [Paper presentation]. International Society for the Scholarship of Teaching and Learning Conference, Calgary, AB, Canada.
19. Tweedie, M. G., & **Chu, M-W.** (2017, April 27-May 1). *A comparison of English language proficiency admission measures of postsecondary academic success* [Paper presentation]. American Educational Research Association, San Antonio, TX, United States.
18. **Chu, M-W.**, & Leighton, J. P. (2016, October 26-28). *Use of learning errors and formative feedback (LEAFF) model to improve scientific inquiry skills* [Paper presentation]. Science, Technology, Engineering, and Mathematics (STEM) in Education Bi-Annual Conference, Beijing, China – Paper won Best Paper Award from the conference.
17. **Chu, M-W.**, & Leighton, J. P. (2016, July 1-4). *Educational testing and assessment: Assessment for improving learning in the classroom* [Poster presentation]. International Test Commission Bi-Annual Conference, Vancouver, BC, Canada.
16. Fung, K., & **Chu, M-W.** (2016, July 1-4). *Educational testing and assessment: Validity* [Poster presentation]. International Test Commission Bi-Annual Conference, Vancouver, BC, Canada.
15. Leighton, J. P., Guo, Q., **Chu, M-W.**, & Tang, W. (2016, April 8-12). *A panel structural equation model of the effects of trust and sympathy on learner outcomes* [Poster presentation] American Educational Research Association, Washington, DC, United States.
14. Durksen, T. L., **Chu, M-W.**, Ahmad, Z. F., Radil, A. I., & Daniels, L. M. (2014, November 30 – December 4). *Probabilistic analysis of academic engagement: Exploring student motivation through a massive open online course* [Paper presentation]. Australian Association for Research in Education and New Zealand Association for Research in Education Joint Conference, Brisbane, Australia.
13. **Chu, M-W.**, & Leighton, J. P. (2014, April 3-7). Formative feedback in computer programming learning and assessment environments. In M-W. Chu & J. M. Harley

- (Chairs), *Innovative practice for assessment in computer based learning environments* [Symposium]. American Educational Research Association, Philadelphia, PA, United States.
12. **Chu, M-W.**, Babenko, O., Cui, Y., & Leighton, J. P. (2014, April 3-7). *Exploring the effects of perceptions of learning environments and assessments on students' test performance* [Paper presentation]. American Educational Research Association, Philadelphia, PA, United States.
 11. **Chu, M-W.**, & Delos Santos, J. (2014, April 3-7). *Hands-on activities effecting test performance amongst grades 4, 8, and 12 students* [Paper presentation]. American Educational Research Association, Philadelphia, PA, United States.
 10. **Chu, M-W.**, & Leighton, J. P. (2014, April 3-7). Science computer simulated laboratory assessment. In D. Buzza & G. Harrison (Chair), *Technology and the 21st century learner* [Symposium]. American Educational Research Association, Philadelphia, PA, United States.
 9. **Chu, M-W.**, & Leighton, J. P. (2014, April 4-6). *Developing a technologically enhanced hybrid: Cognitive diagnostic stealth assessment (CDSA)* [Paper presentation]. National Council on Measurement in Education, Philadelphia, PA, United States.
 8. **Chu, M-W.**, McCaffrey, A., Zhang, X., Daniels, L. M., & Leighton, J. P. (2014, April 3-7). *Measure of MOOC Environments on Achievement using the Learning Errors and Formative Feedback (LEAFF) Model* [Poster presentation]. American Educational Research Association, Philadelphia, PA, United States.
 7. **Chu, M-W.**, Tang, W., Khan, S., & Leighton, J. P. (2014, April 3-7). *Comparison of structural equation modelling and Bayesian networks in educational research* [Poster presentation]. American Educational Research Association, Philadelphia, PA, United States.
 6. **Chu, M-W.**, Babenko, O., Cui, Y., & Leighton, J. P. (2013, April 27-May 1). *Exploring students' perceptions of learning environments and attitudes towards international tests* [Poster presentation]. American Educational Research Association, San Francisco, CA, United States.
 5. **Chu, M-W.**, Wagner, A. K., Leighton, J. P., & Daniels, L. M. (2013, April 27-May 1). *Examinees' emotion changes and performance during computer adaptive tests* [Poster presentation]. American Educational Research Association, San Francisco, CA, United States.
 4. **Chu, M-W.**, Guo, Q., & Leighton, J. P. (2013, April 25-28). *Modeling the relationship between student trust and attitude towards tests* [Paper presentation]. Western Psychological Association, Reno, NV, United States.
 3. **Chu, M-W.**, Lai, H., & Wang, X. (2012, April 12-16). *Effectiveness of CATSIB under impact in a multistage testing environment* [Poster presentation]. National Council on Measurement in Education, Vancouver, BC, Canada.
 2. Seitz, P., & **Chu, M-W.** (2012, April 13-17). *Curricular validity: Extent to which it is practiced in grade 9 science classrooms* [Poster presentation]. American Educational Research Association, Vancouver, BC, Canada.
 1. Roberts, M. R., Gotzmann, A., Bahry, L. M., Alves, C. B., Lai, H., & **Chu, M-W.** (2011, April 8-12). *Testing expert-based vs. student based cognitive models for a grade 6 diagnostic mathematics assessment* [Poster presentation]. American Educational Research Association, New Orleans, LA, United States.

Refereed Invited International Presentations (Number of presentations: 2)

2. Roberts, M. R., Alves, C. B., **Chu, M-W.**, Thompson, M., Bahry, L. M., & Gotzmann, A., (2012, April 13-17). *Testing expert-based vs. student-based cognitive models for a grade 3 diagnostic mathematics assessment* [Paper presentation]. American Educational Research Association, Vancouver, BC, Canada. – Paper won Exemplary Work from Promising Researchers award
1. Leighton, J.P., **Chu, M-W.**, & Seitz, P. (2011, October). *Cognitive Diagnostic Assessment and the Learning Errors and Formative Feedback (LEAFF) Model* [Conference session]. MARCES/MSDE Event on Informing the Practice of Teaching Using Formative and Interim Assessment: A Systems Approach, University of Maryland, College Park, United States.

Referred National Presentations (Number of presentations: 39, Number of first author presentations: 13)

42. Waatainen, P., & **Chu, M-W.**, (2022, May 14-20). *A conceptual framework to scaffold teacher education in designing authentic assessments of citizenship competencies* [Conference session]. Canadian Society for the Study of Education annual conference, online conference
41. Deforge, K., Seitz, P., Bulut, O., **Chu, M-W.**, Gorgun, G., & Hachem, M. (2022, April 10-12). *Giving students a voice: A measure of students' socio-emotional wellbeing to optimize learning for all students* [Conference session]. ULead Summit of Educational Leadership, Banff, AB, Canada.
40. Hachem, M., Gorgun, G., **Chu, M-W.**, Bulut, O. (2022, April 10-12). *Social and emotional variables as predictors of students' perceived cognitive competence and academic performance* [Conference session]. ULead Summit of Educational Leadership, Banff, AB, Canada.
39. Linton, K., Smith, R., Mosher, R., Brown, B., & **Chu, M-W.** (2022, April 10-12). *Leadership and teacher assessment literacy: A design-based professional learning approach* [Conference session]. ULead Summit of Educational Leadership, Banff, AB, Canada.
38. **Chu, M-W.**, Craig, H., & Hoey, F. (2021, May 29-June 3). *Resources for in-person and online learning environments to improve student learning* [Paper presentation]. Canadian Society for the Study of Education annual conference, Edmonton, AB, CANADA
37. Waatainen, P., & **Chu, M-W.** (2021, May 29-June 3). *Designing an authentic assessment of Grade 6 citizenship competency* [Paper presentation]. Canadian Society for the Study of Education annual conference, Edmonton, AB, CANADA
36. Hachem, M., Gorgun, G., **Chu, M-W.**, Bulut, O. (2021, May 29-June 3). *Social and emotional variables as predictors of students' cognitive competence and academic performance* [Paper presentation]. Canadian Society for the Study of Education annual conference, Edmonton, AB, CANADA
35. Clark, D., Hernandez Zavaleta, J. E., Rothschuh, S., Sandra, B., Mattingly, P., Ostrowdun, C., **Chu, M-W.**, Sandhu, K., Vryenhoek, J., Cao, L., & Plaszc, J. (2021, May 29-June 3). *Designing games for geometric transformations in the classroom: Mathematically meaningful play* [Paper presentation]. Canadian Society for the Study of Education annual conference, Edmonton, AB, CANADA

34. **Chu, M-W.**, Sakyi, A., Delos Santos, J., Zieminski, J., & Hachem, M. (2020, May 30-June 4). *The fine line between appropriate and inappropriate uses of large scale data: Alberta's use of the teaching and learning international survey (TALIS)* [Conference session]. Canadian Society for the Study of Education Conference, London, ON, Canada. <https://csse-scee.ca/wp-content/uploads/2020/03/CSSE-Program-Draft-Mar-1.pdf> (Conference cancelled)
33. **Chu, M-W.**, Fung, K., Xu, Y., & Yeworiew, L. (2020, May 30-June 4). *Tracking students' science questionnaire responses in large-scale assessments: PCAP 2013 and PISA 2015* [Paper presentation]. Canadian Society for the Study of Education Conference, London, ON, Canada. <https://csse-scee.ca/wp-content/uploads/2020/03/CSSE-Program-Draft-Mar-1.pdf> (Conference cancelled)
32. Mattingly, P. & **Chu, M-W.** (2020, May 30-June 4). *Inferring engagement from learner actions in game-based assessments* [Paper presentation]. Canadian Society for the Study of Education Conference, London, ON, Canada. <https://csse-scee.ca/wp-content/uploads/2020/03/CSSE-Program-Draft-Mar-1.pdf> (Conference cancelled)
31. Burleigh, D., Mombourquette, C., Adams, P., Brandon, J., Brown, B., **Chu, M-W.**, Friesen, S., Hunter, D., Louie, D., Parsons, D., Schmidt, E., & Stelmach, B. (2020, May 30-June 4). *The optimum learning for all students: Implementing Alberta's 2018 professional practice standards. a longitudinal, mixed methods research study* [Paper presentation]. Canadian Society for the Study of Education Conference, London, ON, Canada. <https://csse-scee.ca/wp-content/uploads/2020/03/CSSE-Program-Draft-Mar-1.pdf> (Conference cancelled)
30. **Chu, M-W.**, Mosher, R., Brown, B., & Linton, K. (2020, May 30-June 4). Improving teachers' assessment literacy as measured by the Alberta teaching quality standard. In M-W. Chu (Chair), *Design-based professional learning for improved teacher assessment literacy and leadership* [Symposium]. Canadian Society for the Study of Education Conference, London, ON, Canada. <https://csse-scee.ca/wp-content/uploads/2020/03/CSSE-Program-Draft-Mar-1.pdf> (Conference cancelled)
29. Mosher, R., **Chu, M-W.**, Linton, K., & Brown, B. (2020, May 30-June 4). Trajectories of teacher-learners. In M-W. Chu (Chair), *Design-based professional learning for improved teacher assessment literacy and leadership* [Symposium]. Canadian Society for the Study of Education Conference, London, ON, Canada. <https://csse-scee.ca/wp-content/uploads/2020/03/CSSE-Program-Draft-Mar-1.pdf> (Conference cancelled)
28. Brown, B., Linton, K., **Chu, M-W.**, & Mosher, R., (2020, May 30-June 4). DBPL framework: Recurring cycles to strengthen pedagogical and teacher-leadership capacity. In M-W. Chu (Chair), *Design-based professional learning for improved teacher assessment literacy and leadership* [Symposium]. Canadian Society for the Study of Education Conference, London, ON, Canada. <https://csse-scee.ca/wp-content/uploads/2020/03/CSSE-Program-Draft-Mar-1.pdf> (Conference cancelled)
27. Linton, K., Brown, B., Mosher, R., & **Chu, M-W.** (2020, May 30-June 4). Enacting DBPL in schools: How principals support teacher professional learning and leadership in RPPs. In M-W. Chu (Chair), *Design-based professional learning for improved teacher assessment literacy and leadership* [Symposium]. Canadian Society for the Study of Education Conference, London, ON, Canada. <https://csse-scee.ca/wp-content/uploads/2020/03/CSSE-Program-Draft-Mar-1.pdf> (Conference cancelled)

26. Hladik, S. **Chu, M-W.**, & Shanahan, M-C. (2019, June 1-5). *Reviewing digitally simulated learning environments and cross-curricular competencies in kinematics education* [Paper presentation]. Canadian Society for the Study of Education Conference, Vancouver, BC, Canada.
25. Cockburn, J., & **Chu, M-W.** (2019, June 1-5). *Defining scientific competencies for use in the classroom* [Paper presentation]. Canadian Society for the Study of Education Conference, Vancouver, BC, Canada.
24. Friesen, S., Brown, B., **Chu, M-W.**, Hill, J., & Pamplin, L. (2019, June 1-5). *Leading learning in K-12 schools* [Conference session]. Canadian Society for the Study of Education Conference, Vancouver, BC, Canada.
23. Brandon, J., Parsons, D., Brown, B., Friesen, S., Louie, D., **Chu, M-W.**, Hunter, D., Stelmach, B., Mombourquette, C., Adams, & P., Burleigh, D. (2019, June 1-5). *Leading for optimum learning — building, supporting, and assuring quality professional practice* [Conference Session]. Canadian Society for the Study of Education Conference, Vancouver, BC, Canada.
22. Ostrowski, C. P., **Chu, M-W.**, Lock, J., & Takeuchi, M. (2019, June 2-4). *Preservice teachers' metaphors of inclusion* [Paper presentation]. Canadian Society for the Study of Higher Education Conference, Vancouver, BC, Canada.
21. Craig, H., Young, J., Jones, K., **Chu, M-W.**, & Wilcox, G. (2018, June 26-30). *Content validation: Development of an individualized education plan learning task to meet classroom needs and educational psychology principles for undergraduate pre-service teachers* [Poster presentation]. International Congress of Applied Psychology Conference, Montreal, QB, Canada.
20. **Chu, M-W.**, Aston, R., Cui, Y., Shojaee, M., & Bawel, B. (2018, May 26-30). *Development of a digital game-based assessment to measure science skill-based outcomes* [Paper presentation]. Canadian Society for the Study of Education Conference, Regina, SK, Canada.
19. Fung, K., & **Chu, M-W.** (2018, May 26-30). *Science assessment profiles of provinces in Canada* [Paper presentation]. Canadian Society for the Study of Education Conference, Regina, SK, Canada.
18. Faught, E., Mosher, R., & **Chu, M-W.** (2018, May 26-30). *The development and validation of a student results survey for the Calgary Board of Education (CBE)* [Paper presentation]. Canadian Society for the Study of Education Conference, Regina, SK, Canada.
17. Aston, R., & **Chu, M-W.** (2018, May 26-30). *The importance of curriculum alignment in summative assessments* [Poster presentation]. Canadian Society for the Study of Education Conference, Regina, SK, Canada.
16. Jones, K. M., **Chu, M-W.** & Young, J. (2017, June 7-9). Developing an individual program plan assignment for preservice teachers. In G. Wilcox (Chair), *Preparing preservice teachers to program for individual student needs* [Symposium]. Canadian Psychological Association Conference, Toronto, ON, Canada.
15. Young, J., **Chu, M-W.** & Jones, K. M. (2017, June 7-9). *Validating an individual program plan assignment for preservice teachers*. In G. Wilcox (Chair), *Preparing preservice teachers to program for individual student needs* [Symposium]. Canadian Psychological Association Conference, Toronto, ON, Canada.

14. Jones, K. M., Young, J. & **Chu, M-W.** (2017, June 7-9). *Validation study results, implications and future directions for an individual program plan assignment for preservice teachers*. In G. Wilcox (Chair), *Preparing preservice teachers to program for individual student needs* [Symposium]. Canadian Psychological Association Conference, Toronto, ON, Canada.
13. **Chu, M-W.**, & Fung, K. (2017, May 27-31). *Relationship between classroom-based and large-scale assessments across Canada* [Paper presentation]. Canadian Society for the Study of Education Conference, Toronto, ON, Canada.
12. **Chu, M-W.**, Shanahan, M.-C., Alonso-Yanez, G., Quarrington, C., Zwicker, M., Fritz, J.-A., Moorman, L., & MacDonald, D. (2017, May 27-31). *Understanding the state of STEM, innovation, and entrepreneurship education*. [Paper presentation]. Canadian Society for the Study of Education Conference, Toronto, ON, Canada.
11. Tweedie, G., & **Chu, M-W.** (2016, May 28-30). *A comparison of IELTS, TOFEL, and English for academic purposes as predictors of student success in an undergraduate engineering course* [Paper presentation]. Association Canadienne de Linguistique Appliquée/Canadian Association of Applied Linguistics Conference, Calgary, AB, Canada.
10. **Chu, M-W.**, & Fung, K. (2016, May 28-June 1). *Problems with high school grades being used for university admissions* [Paper presentation]. Canadian Society for the Study of Education Conference, Calgary, AB, Canada.
9. Fung, K., & **Chu, M-W.** (2016, May 28-June 1). *A comparison of educational programs and assessments across Canada* [Paper presentation]. Canadian Society for the Study of Education Conference, Calgary, AB, Canada.
8. **Chu, M-W.**, Tang, W., Khan, S., & Leighton, J. P. (2014, May 24-28). *Exploratory analyses of affective variables in education* [Paper presentation]. Canadian Society for the Study of Education Conference, St. Catharines, ON, Canada.
7. **Chu, M-W.**, & Delos Santos, J. (2014, May 24-28). *Performing hands-on science laboratories in school* [Poster presentation]. Canadian Society for the Study of Education Conference, St. Catharines, ON, Canada.
6. **Chu, M-W.**, & Leighton, J. P. (2013, June 1-5). Innovation in testing: Stealth assessment of affect and cognition. In J. P. Leighton (Chair), *Assessment and measurement of learning in light of learners' affective and cognitive states* [Symposium]. Canadian Society for the Study of Education Conference, Victoria, BC, Canada.
5. Seitz, P., **Chu, M-W.**, Fung, K., Latifi, S. M. F. (2013, June 1-5). *The CERA graduate debate: Provincial testing in Canada: Yes or No? No* [Paper presentation]. Canadian Society for the Study of Education Conference, Victoria, BC, Canada.
4. Gee, D., Rockwell, G., **Chu, M-W.**, Simeon, B. (2013, June 3). *Assessing serious games* [Paper presentation]. Canadian Society for Digital Humanities Conference, Victoria, BC, Canada.
3. **Chu, M-W.** (2012, May 27-30). *Gestalt principles in physics education: Does it develop with teaching experience?* [Paper presentation]. Canadian Society for the Study of Education Conference, Waterloo, ON, Canada.
2. Seitz, P., **Chu, M-W.**, Bustos, M., & Leighton, J. P. (2012, May 27-30). Creating safe classroom environments using the learning errors and formative feedback (LEAFF) model. In C. Poth & U. Luhanga (Chairs), *Conceptual and technical advances to enhance*

teaching and learning environments [Symposium]. Canadian Society for the Study of Education Conference, Waterloo, ON, Canada.

1. **Chu, M-W.** (2012, February 22-24). *Pre-service teachers' emphasis and focus on the physics program-of-study* [Poster presentation]. Western Canadian Association for Student Teaching, Calgary, AB, Canada.

Refereed Invited National Presentations (Number of presentations: 2, Number of first author presentations: 1)

2. **Chu, M-W., & Leighton, J. P.** (2012, June 28-29). *Investigating computer-simulated laboratory assessments using the learning errors and formative feedback (LEAFF) model* [Poster presentation]. Learning Environments Across Disciplines, Montreal, QC, Canada.
1. Leighton, J. P., & **Chu, M-W.** (2012, June 28-29). *Review of innovations in the science of assessment* [Paper presentation]. Learning Environments Across Disciplines, Montreal, QC, Canada.

Refereed Local Presentations (Number of presentations: 15, Number of first author presentations: 7)

15. Brandon, J., Stelmach, B., Mombourquette, C., Hunter, D., Friesen, S., & **Chu, M-W.** (2020, April 22-24). *Implementation of professional practice standards part A (highlights from a study of professional practice standards implementation) & B (how data from a study of the implementation of professional practice standards can guide your school jurisdiction's implementation plans)* [Conference session]. College of Alberta School Superintendent Learning Conference, Edmonton, AB, Canada.
14. **Chu, M-W.,** Nordstokke, D., & Koh, K., (2017, August). *Integrating services in education: Using data to inform school-based decision-making* [Conference session]. Partner Research School Conference, Calgary, AB, Canada.
13. **Chu, M-W., & Bawel, B.** (2017, May 4-5). *Development of a digital game-based science assessment using evidence-centered game design* [Paper presentation]. IDEAS: Designing for Innovation, Calgary, AB, Canada.
12. **Chu, M-W., & Fowler, T. A.** (2016, May 2-3). *Use of formative assessments and feedback in a large-class environment* [Poster presentation]. Conference on Postsecondary Learning and Teaching, Calgary, AB, Canada.
11. Fowler, T. A., & **Chu, M-W.** (2016, May 2-3). *Disconnect in designing virtual learning spaces* [Poster presentation]. Conference on Postsecondary Learning and Teaching, Calgary, AB, Canada.
10. Fowler, T. A., & **Chu, M-W.** (2016, May 2-3). *Carving out space for creativity in higher education* [Poster presentation]. Conference on Postsecondary Learning and Teaching, Calgary, AB, Canada.
9. **Chu, M-W.,** Shanahan, M.-C., Alonso-Yanez, G., Moorman, L., Fritz, J.-A., & Walton, C. (2016, May 4-6). *World café-style discussions of innovation and entrepreneurship education* [Conference session]. IDEAS: Designing for Innovation, Calgary, AB, Canada.
8. Poth, C., **Chu, M-W.,** Bustos, M., Chudnovskaya, E., Seitz, P., Stafiej, S., Luhanga, U., Tang, W., Coates, T., & Mills, M. (2012, August 15). *"All for one and one for all": An innovative approach for enhancing TA and instructor experiences in multi-section courses* [Poster presentation]. Centre for Teaching and Learning's Teaching Big: The Joy of Large Classes, Edmonton, AB, Canada.

7. Poth, C., Bustos, M., **Chu, M-W.**, Seitz, P., Chudnovskaya, E., Luhanga, U., Stafiej, S., Tang, W., Mills, M., & Coates, T. (2012, July). *"Help me learn in a big class!": Key features of an effective team instructional approach* [Poster presentation]. Centre for Teaching and Learning's Teaching Big: The Joy of Large Classes, Edmonton, AB, Canada.
6. Chudnovskaya, E., Stafiej, S. T., Luhanga, U., Poth, C., **Chu, M-W.**, Seitz, P., Bustos, M., Tang, W., Mills, M., & Coates, T. (2012, March). *Supporting student learning in a large multi-section class through a team instructional approach* [Poster presentation]. Festival of Teaching Conference, Edmonton, AB, Canada.
5. **Chu, M-W.**, & Stafiej, S. T. (2012, March). *Acing the final: Strategies to overcome exam anxiety* [Conference session]. Edmonton Community Mental Health Symposium, Edmonton, AB, Canada.
4. **Chu, M-W.**, & Gomez, M. (2012, March). *Relationship between teaching experiences and using gestalt principles in the classroom* [Poster presentation]. G. M. Dunlop Graduate Student Colloquium, Edmonton, AB, Canada.
3. **Chu, M-W.** (2011, March). *Curricular emphases in Alberta's physics program-of-study: A mixed method study* [Conference session]. G. M. Dunlop Graduate Student Colloquium, Edmonton, AB, Canada.
2. Moore, E., **Chu, M-W.**, Poth, C., Daniels, L. (2011, March). *The impact of a team instructional approach: The perspective of students, teaching assistance, and instructors involved in multiple sections of large classes* [Poster presentation]. Festival of Teaching Conference, Edmonton, AB, Canada.
1. **Chu, M-W.** & Moore, E. (2011, March). *Student-teachers' attitude toward educational assessment: A longitudinal study* [Conference session]. Secondary Education Graduate Student Association and Elementary Education: Graduate Student Association Research Showcase, Edmonton, AB, Canada.

Non-Refereed Invited Local Presentations (Number of presentations: 9, Number of first author presentations: 4)

9. **Chu, M-W.**, Mosher, R., Smith, R., Brown, B., & Linton, K. (2019, October). *Teachers' Levels of Assessment Literacy as Measured by the Teacher Quality Standards* [Conference session]. Alberta Research Network Meeting, Edmonton, AB, Canada.
8. Bulut, O., DeForge, K., Seitz, P. & **Chu, M-W.** (2019, June). *Providing students with a voice: A measure of students' socio-emotional wellbeing to optimize learning for all students* [Conference session]. Alberta Research Network Meeting, Edmonton, AB, Canada.
7. Linton, K., & **Chu, M-W.** (2018, November). *Improving assessment literacy: Using design-based research to enhance teachers' abilities to demonstrate competencies from the Teaching Quality Standard* [Conference session]. Alberta Research Network Meeting, Edmonton, AB, Canada.
6. Xu, Y., Yeworiew, L. B. & **Chu, M-W.** (2018, August). *Inquiry-based activities and their influences on science achievements in North America* [Poster presentation]. Alberta Education Internship Showcase Presentation, Edmonton, AB, Canada.
5. Yeworiew, L. B., Xu, Y., & **Chu, M-W.** (2018, August). *Assessment practices and its effect on Canadian student's math and science achievement* [Poster presentation]. Alberta Education Internship Showcase Presentation, Edmonton, AB, Canada.

4. **Chu, M-W.** (2018, March). *Validating Authentic Assessments: Ensuring Individualized Program Planning Knowledge and Skills in Pre-service Teachers* [Conference session]. Werklund School of Education Teaching and Learning Grants Panel, Calgary, AB, Canada.
3. Dressler, R., **Chu, M-W.**, Crossman, K., & Hilman, B. (2017, April). *Investigation of students' receptivity and use of formative feedback in an online graduate research course* [Conference session]. Scholarship of Teaching and Learning Grant Panel, Calgary, AB, Canada.
2. **Chu, M-W.**, & Fowler, T. A. (2016, August). *Success for all students: Maximizing continuous formative feedback* [Conference session]. Partner Research Schools Conference, Calgary, AB, Canada.
1. **Chu, M-W.** & Bechtel, R. (2009, November). *Science Teachers in the Research Lab* [Poster presentation]. Alberta Teachers' Association Science Council Annual Conference, Red Deer, AB, Canada.

Non-refereed Contributions (Number of contribution: 5, Number of first author contributions: 1)

5. Schroeder, M., Wilcox, G., Friesen, S., **Chu, M-W.**, Braunberger, D., & Carlson, T. (2024). *Examining the Wellbeing and Professional Learning and Development of Alberta Junior High School Teachers who Support Students with Special Needs* [Report to Alberta Education]. Werklund School of Education, University of Calgary.
4. **Chu, M-W.**, Brown, B., Mosher, R., Linton, K., & Smith, R. (2020). *Improving assessment literacy: Using a design-based professional learning intervention to enhance junior high teachers' teaching quality standard competencies – Research partnerships program final report (2018-0041)*. Alberta Education.
3. Bulut, O., Seitz, P., Deforge, K., **Chu, M-W.**, Hachem, M., & Gorgun, G. (2020). *Providing students with a voice: A measure of students' Socio-emotional wellbeing to optimize learning for all students - Research partnerships program final report (2019-0027)*. Alberta Education. <https://doi.org/10.7939/r3-jkvz-qt28>
2. Deforge, K., Proctor, S., Seitz, P., Bulut, O., **Chu, M-W.**, Hachem, M., & Gorgun, G. (2020). *Student voice report: District wide*. Calgary Catholic School District.
1. Brown, B., Friesen, S., & **Chu, M-W.** (2017, March). *Calgary Board of Education kindergarten-9 learning leader professional learning research summary*. Calgary Board of Education.

Research Funding

(Total grant funding to date: \$1,101,899.88)

Funding Agency	Name of Project	Role	Duration of Funding	Amount
16. Alberta Education Research Partnerships Program	Examining the Impact of Technology-Enhanced Formative and Summative Assessment	Co-Principal Investigator (Co-PI)	May 2022 – March 2025	\$49,500

	Practices on High School Students' Learning			
15. Social Sciences and Humanities Research Council	Digital Performance-Based Learning and Assessment System for Teaching Data Literacy	Collaborator	June 1, 2019-May 31, 2024	\$298,689
14. Alberta Education	Optimum Learning For All Students	Collaborator	January 2019-December 2023	\$400,000
13. Alberta Education Research Partnerships Program	Providing Students with a Voice: A Measure of Students' Socio-Emotional Wellbeing to Optimize Learning for all Students	Co-Principal Investigator (Co-PI)	April 2019 – March 2021	\$45,122.88
12. Social Sciences and Humanities Research Council	Measuring Cross-Curricular Competencies using Digitally Simulated Science Laboratories	Principal Investigator (PI)	July 1, 2018-May 31, 2020	\$74,675
11. Werklund School of Education, Office of Teaching and Learning	Mutualistic Course Delivery Formats: Evaluation of Resources Designed for Online and Face-to-Face Courses	PI	August 2018-August 2020	\$6,500
10. University of Calgary Taylor Institute Teaching and Learning Grants	Preservice Teachers' Conceptualizations of Disability and Inclusion	PI	June 1, 2018-May 31, 2020	\$31,061
9. University of Alberta Killam Research Fund Cornerstone Grant Program	Log Data Analysis and Formative Feedback in Technology-Based Assessment	Co-PI	May 2018 – May 2019	\$38,969
8. Alberta Education Research Partnerships Program	Improving Assessment Literacy	PI	April 2018 – March 2020	\$50,000
7. Werklund School of Education Development Grant	Validation of a Digital Game-Based Science Assessment	PI	May 2017-May 2018	\$1500
6. Werklund School of Education, Office of Teaching and Learning	Validating Authentic Assessments: Ensuring Individualized Program Planning Knowledge and Skills in Pre-service Teachers	Co-PI	August 2016-August 2018	\$10,000

5. Werklund School of Education, Strategic Research Priority Funding/Research Collaboration Grant	Assessment of Inquiry-Based Education	Co-PI	March 2016-March 2017	\$5000
4. Werklund School of Education, Office of Professional and Community Engagement	Partner Research School Project, Success for All Students: Maximizing Continuous Formative Feedback	PI	January 2016-January 2017	\$2400
3. Werklund School of Education, Office of Teaching and Learning	Investigation of Students' Receptivity and Use of Formative Feedback in Online Graduate Research Courses	Co-PI	January 2016-August 2017	\$9,918
2. Izaak Walton Killam Memorial Scholarship		PI	May 2014-May 2016	\$70,000
1. Queen Elizabeth II Graduate Scholarship – Doctoral Level		PI	September 2013-April 2014	\$15,000

Awards

(Total award to date: \$13,495)

Research (Total: \$11, 695)

8. **Early Career Research Award** for 2022-2023 from the Werklund School of Education (June 2022, University of Calgary, Calgary, Alberta) - \$2000
7. **Science, Technology, Engineering, and Mathematics (STEM) in Education Conference Best Paper Award** for Use of Learning Errors and Formative Feedback (LEAFF) Model to Improve Scientific Inquiry Skills (October 2016, Beijing, China)
6. **Dorothy J Killam Memorial Graduate Prize** (September 2014, University of Alberta, Edmonton, Alberta) - \$2500
5. **Louise Svarich Memorial Graduate Award** (January 2014, University of Alberta, Edmonton, Alberta) - \$2000
4. **Canadian Educational Researchers' Association David Bateson New Scholar Award** (June 2013, Canadian Society for the Study of Education – Canadian Educational Researchers' Association, Victoria, BC) - \$155
3. **Andrew Stewart Memorial Graduate Prize** (April 2013, University of Alberta, Edmonton, Alberta) - \$5000
2. **American Educational Research Association Division D In-Progress Poster Gala - First Place** (April 2011, New Orleans, LA)
1. **G. M. Dunlop Graduate Student Colloquium - Best Presentation 2011** (March 2011, University of Alberta, Edmonton, Alberta) - \$40

Teaching (Total: \$2500)

5. **University of Calgary Teaching Award for Full-time Academic Staff – Assistant Professor** (June 2020, University of Calgary, Calgary, Alberta)
4. **Werklund School of Education Teaching Excellence Award** (June 2019, University of Calgary, Calgary, Alberta) - \$2000
3. **Education Students’ Association Teaching Award** (June 2017, University of Calgary, Calgary, Alberta)
2. **Graduate Student Teaching Award – Bronze** (March 2012, University of Alberta, Edmonton, Alberta) - \$500
1. **First Annual Iron Science Teacher Competition – First Place** (November 2007, Edmonton, Alberta)

Community Awards

1. **Calgary Avenue Magazine Top 40 Under 40** (November 2020, Calgary, Alberta)

Conference and Professional Development Funds (Total: \$1300)

1. **Faculty of Graduate Studies and Research (FGSR) – Profiling Alberta’s Graduate Students Award** (May 2014, University of Alberta, Edmonton, Alberta) - \$1300

Research Experience

Academic Appointment

Associate Professor at the University of Calgary July 2020 – current
Werklund School of Education

Role: worked with different teams to conduct various research projects, such as validation of game-based assessment, individual program plan course assignment, and professional learning survey; as well as secondary data analyses of Canada-wide science classroom assessments. Also partnered with local schools and non-profit organizations to participate in assessment related research.

Academic Appointment

Assistant Professor at the University of Calgary July 2015 – August 2020
Werklund School of Education

Role: worked with different teams to conduct various research projects, such as validation of game-based assessment, individual program plan course assignment, and professional learning survey; as well as secondary data analyses of English Language Learners and Canada-wide science classroom assessments. Also partnered with local schools and non-profit organizations to participate in assessment related research.

Research Experience

Research Assistant for Dr. Jacqueline Leighton September 2010 – April 2015
Centre for Research in Applied Measurement and Evaluation, Department of Educational Psychology at the University of Alberta

Role: conducted literature reviews for proposals, participated in regular meetings to discuss research, administered surveys to participants, collected, entered, validated data, analyzed data using Structural Equation Modeling and Bayesian Networking, presented findings, and helped write-up study, peer reviewed publications and chapters for various projects.

Research Assistant for Dr. Cheryl Poth January 2011 – April 2011
 Centre for Research in Applied Measurement and Evaluation, Department of Educational Psychology
Role: facilitated focus groups, analyzed statistical survey data, and wrote academic and non-academic reports of data.

Research Assistant for Dr. Norma Nocente January 2007 – April 2007
 Department of Secondary Education
Role: organized research teams and researched a variety of topics for various projects, as well as worked with Curriculum Framework Committee to help document new teacher preparation program at the University of Alberta.

Teaching Experience

Undergraduate Courses

Individual Learning: Theories and Application (EDUC 445; University of Calgary)

This course entails a detailed consideration of contemporary understandings of the nature of individual learning and what this means for practices such as differentiated instruction and inclusive education. Teachers need to support a range of students who will be in their classroom. Hence, approaches to adapting and enhancing classroom contexts for students with diverse needs are addressed.

Role: organizing a team of 11 teaching assistants, a laboratory instructor, and a laboratory coordinator to teach ~550 undergraduate students. As a team, we prepare materials (i.e., class notes, presentation slides) for weekly lectures, develop assessments and put them onto D2L online platform.

Educational Assessment (EDPY 303; University of Alberta) July 2011–April 2015

This course introduce the complexity of classroom assessment as a means of supporting and measuring student learning. As such, this course was designed to facilitate student growth as an assessor, evaluator and communicator of student learning.

Role: prepared materials for each lecture, developed and maintained eClass website for course, created various assignments and resources for course, facilitated weekly meetings with EDPY 303 team, worked with team of instructors and TAs to maintain consistency among sections, engaged students through conversation techniques in class and used I-clickers in large class ($n=100+$) settings.

Graduate Courses

Multivariate Design and Analysis (EDPS 618/718; University of Calgary)

This course serves as a first step in the graduate-level research design and statistics sequence at the Werklund School of Education – EDER 618/718 (Research Design and Statistics I & II) and the subsequent EDPS 609 (Research Design and Statistics II). The purpose of this co-listed course is to present masters and doctoral students with an introduction to basic univariate statistical methods commonly used in social science research. This course will focus on descriptive and inferential univariate statistics, sampling distributions, hypothesis

testing, and a variety of statistical techniques (e.g., t-tests, analysis of variance, correlation, categorical data analysis, and non-parametric analysis). These topics will be covered using three lines of statistical reasoning: (1) computational formulas and assumptions, (2) computer applications, and (3) their appropriate uses in educational research. A thorough understanding of the topics covered in this course will prepare students for more advanced graduate work in research design and statistics which aims to prepare them for their own data analyses.

Role: prepare materials (i.e., class notes, presentation slides, homework questions, and laboratory assignments) for weekly lectures, develop assessments and put them onto D2L online platform (i.e., online testing), use a variety of resources (i.e., theoretical formulas, hands-on laboratories, context-based examples) to convey different statistical concepts.

Research Design and Statistics (EDER 603.05/701.01; University of Calgary)

This course focus on descriptive and inferential univariate statistics, sampling distributions, hypothesis testing, and a variety of statistical techniques (e.g., t-tests, analysis of variance, correlation, categorical data analysis, and non-parametric analysis). These topics are covered using three lines of statistical reasoning: (1) computational formulas and assumptions, (2) computer applications, and (3) their appropriate uses in educational research. A thorough understanding of the topics covered in this course will prepare students for more advanced graduate work in research design and statistics which aims to prepare them for their own data analyses.

Role: prepare materials (i.e., class notes, presentation slides, homework questions, and laboratory assignments) for weekly lectures, develop assessments and put them onto D2L online platform (i.e., online testing), use a variety of resources (i.e., theoretical formulas, hands-on laboratories, context-based examples) to convey different statistical concepts.

Special Topics in Educational Technology: Assessment Practices in Computer-Supported Collaborative Learning (EDER 697.49; University of Calgary)

This course introduce the complexity of assessment as a means of supporting and measuring student learning in CSCL environment. As such, this course is designed to facilitate students' growth as an assessor, evaluator and communicator of student learning. Drawing on tenets from constructivism and social constructivism, in particular activity theory, this course provides an introduction to the use of formative assessment practices to support CSCL.

Role: designed course materials such as discussion board topics, written assignments, and course readings. Guided students towards the development of students' assessments that could be used in their Computer-Supported Collaborative Learning.

Special Topics in Educational Technology: Basic Statistics for Testing and Measurement (EDER 697.56; University of Calgary)

This course provide students with an understanding of statistical approaches to decision making. In this course, students learn a suite of statistical applications that enable them to make practice related, data-based decisions. Students learn to evaluate the reliability and validity of assessment tools and how to use data from such tools to inform teaching and learning decisions. Students also explore and examine how basic statistics can be used in their classroom.

Role: designed course materials such as discussion board topics, SPSS laboratories, written assignments, and course readings. Guided discussions so that students could learn basic measurement and statistical techniques relevant to their own classroom assessments and future research methodology.

Secondary Teaching

Senior High Science Teacher

September 2005 – August 2010

Bishop Grandin High School and Father Lacombe High School, Calgary Separate School District

Role: taught physics and science at all levels including International Baccalaureate, participated in variety of extracurricular activities, and used D2L (online program) for marks, additional notes, and homework assignments.

Student Supervision

Doctoral Students (Main Supervisor or Co-Supervisor; Number of Students: 2)

Anne Mackie *Doctor of Education): Supervisor (Jule 2024 – Current)

Paula Waatainen (Doctor of Education): Supervisor (September 2018-May 2022)¹

Thomasz Guzowski (Doctor of Education): Co-Supervisor (July 2018-April 2022, did not finish)

¹Alberta Graduate Excellence Scholarship recipient

Master Students (Main Supervisor or Co-Supervisor; Number of Students: 3)

Karina Ferreyra (Master of Arts): Supervisor (September 2024 – Current)

Peter Mattingly (Master of Arts): Supervisor (September 2017-completed with new supervisor while I was on maternity leave)^{2,4}

Reem Ghaleb (Master of Arts): Supervisor (September 2018-April 2020, did not finish)^{2,3}

Melody Kaiser (Master of Education): Co-Supervisor (August 2017-December 2019)

²Graduate Programs in Education Engagement Scholarship recipient

³Alberta Student Aid (Formerly Queen Elizabeth II Scholarship) recipient

⁴Donna B. Rediger Graduate Scholarship in Education recipient

Doctoral Students (Supervisory Committee; Number of Students: 6)

Maryam Hachem (Doctor of Philosophy, November 2019-Current)^{5,6}

Daniel Sharp (Doctor of Education; March 2018-Current)

Bradley Colpitts (Doctor of Education; January 2018-Current)

William Dekker (Doctor of Education; January 2018-Current)

Katherine Salmon (Doctor of Education; July 2018-Current)

Chandra Lebenhagen (Doctor of Education, July 2018-December 2020)

⁵Alberta Graduate Excellence Scholarship recipient

⁶Graduate Faculty Council Scholarship – Doctoral recipient

Doctoral Students (Dissertation Examiner; Number of Students: 5)

Kirstin Funke-Robinson (Doctor of Education; Candidacy Oral (Internal Examiner); July 2020

Dana Lowton (Doctor of Education; Candidacy Oral (External Examiner); October 2019)
 Yonatan Porat (Doctor of Education; Candidacy Oral (Internal Examiner); October 2018)
 Kyla McLeod (Doctor of Education; Candidacy Oral (External Examiner); November 2017)
 Sharaz Khan (Doctor of Education; Candidacy Oral (Internal Examiner); September 2017)

Doctoral Students (Neutral Chair; Number of Students: 18)

Jason Rogers (Doctor of Education; Candidacy Oral; August 2020)
 Anne Coulter (Doctor of Education; Candidacy Oral; August 2019)
 Galicia Blackman (Doctor of Philosophy; Candidacy Oral; July 2019)
 Jody Dennis (Doctor of Education; Doctoral Thesis Oral; July 2019)
 Daiwei (David) Yan (Doctor of Education; Candidacy Oral; July 2019)
 Merlene George (Doctor of Education; Doctoral Thesis Oral; January 2019)
 Elizabeth McNeilly (Doctor of Philosophy; Candidacy Oral; November 2018)
 Russell Hazard (Doctor of Education; Candidacy Oral; October 2018)
 Shannon Tipping (Doctor of Education; Candidacy Oral; August 2018)
 Brenda Mansfield (Doctor of Philosophy; Doctoral Thesis Oral; May 2018)
 Jingzhou Liu (Doctor of Philosophy; Candidacy Oral; May 2018)
 Sarah Brown (Doctor of Philosophy; Candidacy Oral; January 2018)
 David St. Germain (Doctor of Education; September 2017; August 2017)
 Shawn Pendergast (Doctor of Education; Candidacy Oral; October 2017)
 Gregory Hardy (Doctor of Education; Candidacy Oral; October 2017)
 Sarah Filler (Doctor of Education; Candidacy Oral; September 2017)
 Melody Pelling (Doctor of Education; Candidacy Oral; September 2017)
 Rae Ann Shawna Van Beers: (Doctor of Education; Candidacy Oral; September 2017)

Professional and University Service

Professional Service

Program Chair for Canadian Society for the Study of Education's (CSSE) Canadian Educational Researchers' Association (CERA) 2024 – Current

Description: I plan and organize the CERA annual conference.

Time Committed: 10 hours/month, with more meetings and e-mails before and during the annual CSSE's CERA conference.

President Elect, President, and Past President for Canadian Society for the Study of Education's (CSSE) Canadian Educational Researchers' Association (CERA)
 2019 – Current

Description: As a member of the CERA executive council, I help initiate and plan various CERA initiatives aimed at promoting Canadian Educational Research

Time Committed: 10 hours/month, with more meetings and e-mails before and during the annual CSSE's CERA conference.

Communication Officer for Canadian Society for the Study of Education's (CSSE) Canadian Educational Researchers' Association (CERA) 2017 – 2020

Description: As a member of the CERA executive council, I send out relevant information to members and maintain our website. I also developed and manage the Graduate Student Research Spotlight initiative.

Time Committed: 10 hours/month, with more meetings and e-mails before and during the annual CSSE's CERA conference.

Editorial Board Member for Research in Science Education (RISE) Current

Description: read, research, provide feedback, and rate journal articles for the peer reviewed RISE journal.

Time Committed: approximately 5-10 hours for each journal received. I usually receive 7-8 journals each year.

Editorial Board Member for Alberta Journal of Educational Research (AJER) Current

Description: read, research, provide feedback, and rate journal articles for the peer reviewed AJER journal.

Time Committed: approximately 5-10 hours for each journal received. I usually receive 1-2 journals each year.

Journal Reviewer for Teaching Education Current

Description: read, researched, provided feedback, and rated journal articles for the peer reviewed Teaching Education journal.

Time Committed: approximately 8 hours for each journal I received. I usually receive 1-2 journals each year.

Proposal Reviewer for Canadian Society for the Study of Education's (CSSE) Current

Description: read, research, comment, and rate proposals to be presented at Canadian Educational Research Association (CERA).

Time Committed: approximately 30 minutes for each journal received. I usually receive 4-5 proposals each year.

Proposal Reviewer for American Educational Research Association (AERA) Current

Description: read, research, comment, and rate proposals to be presented at AERA (Division D).

Time Committed: approximately 45 minutes for each proposal received. I usually receive 10 proposals each year.

Proposal Reviewer for National Council on Measurement in Education (NCME) Current

Description: read, researched, commented, and rated proposals to be presented at NCME.

Time Committed: approximately 1 hour for each proposal received. I usually receive 3-4 proposals each year.

Planning Committee Member for Innovation Exchange 2018

Description: helped plan and organize a two-day event in which various K-12 stakeholders came together to discuss innovation and entrepreneurship education. Results from this event helped direct future research.

Time Committed: approximately 200 hours was used to plan and organize the event, as well as analyze the data collected during and disseminate the results after the event.

Journal Reviewer for Language and Literacy 2015

Description: read, researched, provided feedback, and rated journal articles for the peer reviewed Language and Literacy journal.

Time Committed: approximately 8 hours for the manuscript I received.

University Service

Graduate Programs in Education Student Award Committee Current

Description: reviewed ~50 student grant award applications for various graduate level awards

Time Committed: 100 hours of reviewing applications.

Application Reviewer for Graduate Student Admission Current

Description: reviewed applications for the Learning Sciences Doctoral Program, Master Program, Designing Technology-Rich Collaborative Learning Environments Certificate, and Assessment and Measurement Certificate.

Time Committed: 50 hours of reviewing applications.

Supporter of Teaching Assistant Preparation Program (TAPP) Current

Description: invited TAPP students into my EDUC 445 plenary lectures to observe large class environments.

Time Committed: 1 hour of preparing and discussing the classroom observation with TAPP students.

Winter Luncheon Planning Committee Member Current

Description: helped organize and prepare decorations for the annual Werklund Christmas Lunch.

Time Committed: 5 hours of meetings and purchasing decorations for the lunch.

Coordinator of Designing Technology-rich Collaborative Learning Environments (MEd Interdisciplinary Program) July 2016-June 2017

Description: coordinated, selected instructors, and reviewed course outlines for the four courses of the interdisciplinary program. I also ensured each instructor was supported, by e-mailing and chatting with them, during and after their course.

Time Committed: approximately 10 hours of coordination.
