

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
 Faculty: Werklund School of Education
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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: 25; Number of first author articles: 10)

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. doi: 10.4018/978-1-7998-3476-2.ch005
24. Chen, F., Cui, Y., & **Chu, M-W.** (in press). 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*.
<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*.
<https://doi.org/10.1080/19415257.2019.1709219>
21. Cui, Y., Chen, F., & **Chu, M-W.** (in press). Analyzing student process data in game-based assessments with Bayesian knowledge tracing and dynamic Bayesian network. Paper to be published in the *Journal of Educational Data Mining*.
20. **Chu, M-W.**, & Fowler, T. A. (2020). *Gamification of formative feedback in classrooms*. *International Journal of Game-Based Learning*, 10(1). doi: 10.4018/IJGBL.2020010101
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)3, 251-264. doi: 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*, (), 1-. doi: 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, doi: 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. doi: <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. Retrieved from <https://sc.teachers.ab.ca/SiteCollectionDocuments/ASEJVo145No2March2018.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.
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. Retrieved from <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. doi: <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. doi: 10.1080/10627197.2015.1127752. Retrieved from: <http://myweb.fsu.edu/vshute/pdf/asstPPF.pdf>
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. doi: 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. Retrieved from: <http://dx.doi.org/10.20355/C5KG6P>
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. doi: 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. doi: 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. doi: 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. doi: 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*, vol. 4. Retrieved from http://www.digitalstudies.org/ojs/index.php/digital_studies/article/view/273/336
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.
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.

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. Retrieved from <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*. Retrieved from <http://caflnforum.ca/newsletter/>
2. **Chu, M-W.** (2017). Why Canada fails to be an education superpower. *The Conversation*. Retrieved from <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. Retrieved from <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: 1)

1. **Chu, M-W.**, Wilcox, G., Jones, K., & Young, J. (submitted for review). *Authentic assessments: Preparing pre-service teachers to meet individual needs in the classroom*

Presentations

Refereed International Presentations (Number of presentations: 37, Number of first author presentations: 21)

37. Cui, Y., **Chu, M-W.**, Chen, F., & Guo, Q., (2020). Analyzing student process data with Bayesian knowledge tracing and dynamic Bayesian network. Paper presented in M-W. Chu (Chair), *Analyzing Students' Process Data in a Science Game-Based Assessment*. Symposium conducted at the annual meeting of the National Council on Measurement in Education, San Francisco, CA, USA. (Conference Canceled)
36. Chen, F., Guo, Q., Cui, Y., & **Chu, M-W.**, (2020). Utilizing game analytics to inform digital game-based assessment design. Paper presented in M-W. Chu (Chair), *Analyzing Students' Process Data in a Science Game-Based Assessment*. Symposium conducted at the annual meeting of the National Council on Measurement in Education, San Francisco, CA, USA. (Conference Canceled)
35. **Chu, M-W.**, Cui, Y., Shojaei, M., Hachem, M., Guo, Q., & Chen, F., (2020). Validity of process-based competency outcome claims using think-a-loud data and evidence-trace files. Paper presented in M-W. Chu (Chair), *Analyzing Students' Process Data in a Science Game-Based Assessment*. Symposium conducted at the annual meeting of the National Council on Measurement in Education, San Francisco, CA, USA. (Conference Canceled)
34. Guo, Q., Chen, F., **Chu, M-W.**, & Cui, Y., (2020). Detection of aberrant response patterns using discrete variational autoencoder. Paper presented in M-W. Chu (Chair), *Analyzing Students' Process Data in a Science Game-Based Assessment*. Symposium conducted at the annual meeting of the National Council on Measurement in Education, San Francisco, CA, USA. (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 session]. American Educational Researchers Association annual conference, San Francisco, CA, USA. <http://tinyurl.com/tvf43x4> (Conference Canceled)
32. **Chu, M-W.**, Craig, H., Yeworiew, L. B., Xu, Y. (2019, April). *Unprepared to accommodate special education: Students' unmet needs*. Paper presented at the annual meeting of American Educational Researchers Association conference, Toronto, ON, CANADA.
31. Ostrowski, C., **Chu, M-W.**, Lock, J., & Takeuchi, M. (2019, April). *Understanding preservice teachers' conceptualizations of disability and inclusion through visual representations*. Paper presented at the annual meeting of American Educational Researchers Association conference, Toronto, ON, CANADA.
30. Yeworiew, L. B., Xu, Y., **Chu, M-W.** (2019, April). The role of homework on Canadian grade eight students' achievement in mathematics. Paper presented in M-W. Chu (Chair), *Canadian Educational Researchers' Association Symposium at American Educational Researchers Association*. Symposium conducted at the annual meeting of the American Educational Researchers Association conference, Toronto, ON, CANADA.
29. **Chu, M-W.**, & Seitz, P. (2018, July). *Shifts to standardized testing in Canada*. Paper presented at the bi-annual meeting of International Test Commission Conference, Montreal, QC, CANADA
28. **Chu, M-W.**, Brown, B., & Friesen, S. (2018, July). *Construct Validity Evidence of the Design-based Professional Learning for Teacher Leaders Survey*. Paper presented at the bi-annual meeting of International Test Commission Conference, Montreal, QC, CANADA

27. **Chu, M-W.**, & Fowler, T. A. (2018, June). *Increasing the use of formative feedback: Utilizing game-based principles*. Poster presented at the 13th International Conferences of the Learning Sciences, London, UK, ENGLAND
26. **Chu, M-W.**, Leighton, J. P., Guo, Q., & Cui, Y. (2018, April). The use of digitally simulated laboratories as educational assessment tools. Paper presented in M-W. Chu (Chair), *Digitally simulated science laboratory assessments: differential approaches for analyzing log data*. Symposium conducted at the annual meeting of the National Council on Measurement in Education, New York, NY, USA
25. Leighton, J. P., **Chu, M-W.**, Cui, Y., & Guo, Q. (2018, April). Adding value to diagnostic test-based inferences: The case for socio-emotional inputs. Paper presented in M-W. Chu (Chair), *Digitally simulated science laboratory assessments: differential approaches for analyzing log data*. Symposium conducted at the annual meeting of the National Council on Measurement in Education, New York, NY, USA
24. Guo, Q., Cui, Y., **Chu, M-W.**, & Leighton, J. P. (2018, April). Use Bayesian networks to analyze logfile data and compare with NAEP TRESim results. Paper presented in M-W. Chu (Chair), *Digitally simulated science laboratory assessments: differential approaches for analyzing log data*. Symposium conducted at the annual meeting of the National Council on Measurement in Education, New York, NY, USA
23. Cui, Y., Guo, Q., Leighton, J. P., & **Chu, M-W.** (2018, April). Logdata feature extraction with adaptive-subspace self-organizing map: A neural network approach. Paper presented in M-W. Chu (Chair), *Digitally simulated science laboratory assessments: differential approaches for analyzing log data*. Symposium conducted at the annual meeting of the National Council on Measurement in Education, New York, NY, USA
22. **Chu, M-W.**, & Leighton, J. P. (2018, April). *Enhancing digitally simulated science laboratory experiences using a pre-laboratory activity and learning error intervention*. Paper presented at the annual meeting of American Educational Researchers Association conference, New York, USA.
21. **Chu, M-W.**, Dressler, R., Hilman, B., & Crossman, K. (2018, April). *Uptake of peer and instructor feedback in an online graduate course: Learning and instructional implications*. Poster presented at the annual meeting of American Educational Researchers Association conference, New York, USA.
20. Dressler, R., **Chu, M-W.**, Crossman, K., & Hilman, B. (2017, October). *Peer and Instructor Feedback in an Academic Graduate Writing Course: Exploring an Underexplored Area of SoTL*. Paper presented at the International Society for the Scholarship of Teaching and Learning 2017 conference, Calgary, AB, CANADA.
19. Tweedie, M. G., & **Chu, M-W.** (2017, March). *A comparison of English language proficiency admission measures of postsecondary academic success*. Paper presented at the annual meeting of American Educational Research Association, San Antonio, TX, USA
18. **Chu, M-W.**, & Leighton, J. P. (2016, October). *Use of learning errors and formative feedback (LEAFF) model to improve scientific inquiry skills*. Paper presented at the bi-annual meeting of Science, Technology, Engineering, and Mathematics (STEM) in Education Conference, Beijing, CHINA – Paper won Best Paper Award from the conference.

17. **Chu, M-W.**, & Leighton, J. P. (2016, July). *Educational testing and assessment: Assessment for improving learning in the classroom*. Poster presented at the bi-annual meeting of International Test Commission Conference, Vancouver, BC, CANADA
16. Fung, K., & **Chu, M-W.** (2016, July). *Educational testing and assessment: Validity*. Poster presented at the bi-annual meeting of International Test Commission Conference, Vancouver, BC, CANADA
15. Leighton, J. P., Guo, Q., **Chu, M-W.**, & Tang, W. (2016, April). *A panel structural equation model of the effects of trust and sympathy on learner outcomes*. Poster presented at the annual meeting of American Educational Research Association, Washington, DC, USA
14. Durksen, T. L., **Chu, M-W.**, Ahmad, Z. F., Radil, A. I., & Daniels, L. M. (2014, December). *Probabilistic analysis of academic engagement: Exploring student motivation through a massive open online course*. Paper presented at the annual meeting of the joint conference between Australian Association for Research in Education and New Zealand Association for Research in Education, Brisbane, AUSTRALIA
13. **Chu, M-W.**, & Leighton, J. P. (2014, April). Formative feedback in computer programming learning and assessment environments. Paper presented in M-W. Chu & J. M. Harley (Chair), *Innovative practice for assessment in computer based learning environments*. Symposium conducted at the annual meeting of the American Educational Research Association (AERA), Philadelphia, PA, USA
12. **Chu, M-W.**, Babenko, O., Cui, Y., & Leighton, J. P. (2014, April). *Exploring the effects of perceptions of learning environments and assessments on students' test performance*. Paper presented at the annual meeting of the American Educational Research Association, Philadelphia, PA, USA
11. **Chu, M-W.**, & Delos Santos, J. (2014, April). *Hands-on activities effecting test performance amongst grades 4, 8, and 12 students*. Paper presented at the annual meeting of the American Educational Research Association, Philadelphia, PA, USA
10. **Chu, M-W.**, & Leighton, J. P. (2014, April). Science computer simulated laboratory assessment. Paper presented in D. Buzza & G. Harrison (Chair), *Technology and the 21st century learner*. Invited symposium conducted at the annual meeting of the American Educational Research Association, Philadelphia, PA, USA
9. **Chu, M-W.**, & Leighton, J. P. (2014, April). *Developing a technologically enhanced hybrid: Cognitive diagnostic stealth assessment (CDSA)*. Paper presented at the annual meeting of the National Council on Measurement in Education, Philadelphia, PA, USA
8. **Chu, M-W.**, McCaffrey, A., Zhang, X., Daniels, L. M., & Leighton, J. P. (2014, April). *Measure of MOOC Environments on Achievement using the Learning Errors and Formative Feedback (LEAFF) Model*. Poster presented at the annual meeting of American Educational Research Association, Philadelphia, PA, USA
7. **Chu, M-W.**, Tang, W., Khan, S., & Leighton, J. P. (2014, April). *Comparison of structural equation modelling and Bayesian networks in educational research*. Poster presented at the annual meeting of American Educational Research Association, Philadelphia, PA, USA
6. **Chu, M-W.**, Babenko, O., Cui, Y., & Leighton, J. P. (2013, April). *Exploring students' perceptions of learning environments and attitudes towards international tests*. Poster presented at the annual meeting of American Educational Research Association, San Francisco, CA, USA

5. **Chu, M-W.**, Wagner, A. K., Leighton, J. P., & Daniels, L. M. (2013, April). *Examinees' emotion changes and performance during computer adaptive tests*. Poster presented at the annual meeting of American Educational Research Association, San Francisco, CA, USA
4. **Chu, M-W.**, Guo, Q., & Leighton, J. P. (2013, April). *Modeling the relationship between student trust and attitude towards tests*. Paper presented at the annual meeting of Western Psychological Association, Reno, NV, USA.
3. **Chu, M-W.**, Lai, H., & Wang, X. (2012, April). *Detecting directional DIF using CATSIB with impact present*. Poster session presented at the annual meeting of National Council on Measurement in Education, Vancouver, British Columbia, CANADA
2. Seitz, P., & **Chu, M-W.** (2012, April). *Curricular validity: Extent to which it is practiced in grade 9 science classrooms*. Poster session presented at the annual meeting of American Educational Research Association, Vancouver, British Columbia, CANADA
1. Roberts, M. R., Gotzmann, A., Bahry, L. M., Alves, C. B., Lai, H., & **Chu, M-W.** (2011, April). *Testing expert-based vs. student based cognitive models for a grade 6 diagnostic mathematics assessment*. Poster session presented at the annual meeting of American Educational Research Association, New Orleans, LA, USA

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). *Testing expert-based vs. student-based cognitive models for a grade 3 diagnostic mathematics assessment*. Division D (Educational Measurement & Research Methodology) Exemplary Work from Promising Researchers. Invited presentation delivered at the annual meeting of American Educational Research Association, Vancouver, British Columbia, CANADA.
1. Leighton, J.P., **Chu, M-W.**, & Seitz, P. (2011, October). *Cognitive Diagnostic Assessment and the Learning Errors and Formative Feedback (LEAFF) Model*. Presentation delivered for the 11th Annual MARCES/MSDE Event on Informing the Practice of Teaching Using Formative and Interim Assessment: A Systems Approach. University of Maryland, College Park, USA.

Referred National Presentations (Number of presentations: 35, Number of first author presentations: 13)

35. Linton, K., Smith, R., Mosher, R., Brown, B., & **Chu, M-W.** (2021, April 11-13). *Leadership and teacher assessment literacy: A design-based professional learning approach* [Conference session]. ULead Summit of Educational Leadership, Banff, 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 annual conference, London, ON, CANADA. <https://csse-scee.ca/wp-content/uploads/2020/03/CSSE-Program-Draft-March-1.pdf> (Conference cancelled)
33. 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 annual conference, London, ON, CANADA. <https://csse-scee.ca/wp-content/uploads/2020/03/CSSE-Program-Draft-Mar-1.pdf> (Conference cancelled)
32. **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 session]. Canadian Society for the Study of Education annual conference, London, ON, CANADA. <https://csse-scee.ca/wp-content/uploads/2020/03/CSSE-Program-Draft-Mar-1.pdf> (Conference cancelled)
31. Mattingly, P. & **Chu, M-W.** (2020, May 30-June 4). *Inferring engagement from learner actions in game-based assessments* [Paper session]. Canadian Society for the Study of Education annual 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 annual conference, London, ON, CANADA. <https://csse-scee.ca/wp-content/uploads/2020/03/CSSE-Program-Draft-Mar-1.pdf> (Conference cancelled)
29. 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 annual conference, London, ON, CANADA. <https://csse-scee.ca/wp-content/uploads/2020/03/CSSE-Program-Draft-Mar-1.pdf> (Conference cancelled)
28. 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 annual conference, London, ON, CANADA. <https://csse-scee.ca/wp-content/uploads/2020/03/CSSE-Program-Draft-Mar-1.pdf> (Conference cancelled)
28. 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 annual conference, London, ON, CANADA. <https://csse-scee.ca/wp-content/uploads/2020/03/CSSE-Program-Draft-Mar-1.pdf> (Conference cancelled)
27. Hladik, S. **Chu, M-W.**, & Shanahan, M-C. (2019, June). *Reviewing digitally simulated learning environments and cross-curricular competencies in kinematics education*. Paper presented at the annual meeting of Canadian Society for the Study of Education, Vancouver, BC, CANADA.
26. Cockburn, J., & **Chu, M-W.** (2019, June). *Defining scientific competencies for use in the classroom*. Paper presented at the annual meeting of Canadian Society for the Study of Education, Vancouver, BC, CANADA.
25. Friesen, S., Brown, B., **Chu, M-W.**, Hill, J., & Pamplin, L. (2019, June). *Leading learning in K-12 schools*. Paper presented at the annual meeting of Canadian Society for the Study of Education, Vancouver, BC, CANADA.

24. 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). *Leading for optimum learning — building, supporting, and assuring quality professional practice*. Paper presented at the annual meeting of Canadian Society for the Study of Education, Vancouver, BC, CANADA.
23. Ostrowski, C. P., **Chu, M-W.**, Lock, J., & Takeuchi, M. (2019, June). *Preservice teachers' metaphors of inclusion*. Paper presented at the annual meeting of Canadian Society for the Study of Higher Education Conference. Vancouver, BC, CANADA.
22. Craig, H., Young, J., Jones, K., **Chu, M-W.**, & Wilcox, G. (2018, June). *Content validation: Development of an individualized education plan learning task to meet classroom needs and educational psychology principles for undergraduate pre-service teachers*. Poster presented at the 29th International Congress of Applied Psychology, Montreal, QB, CANADA.
21. **Chu, M-W.**, Aston, R., Cui, Y., Shojaee, M., & Bawel, B. (2018, May) *Development of a digital game-based assessment to measure science skill-based outcomes*. Paper presented at the annual meeting of Canadian Society for the Study of Education, Regina, SK, CANADA
20. Fung, K., & **Chu, M-W.** (2018, May). *Science assessment profiles of provinces in Canada*. Paper presented at the annual meeting of Canadian Society for the Study of Education, Regina, SK, CANADA
19. Faught, E., Mosher, R., & **Chu, M-W.** (2018, May). *The development and validation of a student results survey for the Calgary Board of Education (CBE)*. Paper presented at the annual meeting of Canadian Society for the Study of Education, Regina, SK, CANADA
18. Aston, R., & **Chu, M-W.** (2018, May). *The importance of curriculum alignment in summative assessments*. Poster presented at the annual meeting of Canadian Society for the Study of Education, Regina, SK, CANADA
17. **Chu, M-W.**, Nordstokke, D., & Koh, K., (2017, August). *Integrating services in education: Using data to inform school-based decision-making*. Presentation presented at the annual meeting of Partner Research School Conference, Calgary, AB, CANADA.
16. Jones, K. M., **Chu, M-W.** & Young, J. (2017, June). *Developing an individual program plan assignment for preservice teachers*. In G. Wilcox (Chair), Preparing preservice teachers to program for individual student needs. Symposium conducted at the 78th Annual Meeting of the Canadian Psychological Association, Toronto, ON, CANADA
15. Young, J., **Chu, M-W.** & Jones, K. M. (2017, June). *Validating an individual program plan assignment for preservice teachers*. In G. Wilcox (Chair), Preparing preservice teachers to program for individual student needs. Symposium conducted at the 78th Annual Meeting of the Canadian Psychological Association, Toronto, ON, CANADA
14. Jones, K. M., Young, J. & **Chu, M-W.** (2017, June). *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 conducted at the 78th Annual Meeting of the Canadian Psychological Association, Toronto, ON, CANADA.
13. **Chu, M-W.**, & Fung, K., (2017, May). *Relationship between classroom-based and large-scale assessments across Canada*. Paper presented at the annual meeting of Canadian Society for the Study of Education, 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). *Understanding the state of STEM, innovation, and entrepreneurship education*. Presentation presented at the annual meeting of Canadian Society for the Study of Education, Toronto, ON, CANADA
11. Tweedie, G., & **Chu, M-W.**, (2016, June). *A comparison of IELTS, TOFEL, and English for academic purposes as predictors of student success in an undergraduate engineering course*. Paper presented at the annual meeting of Association Canadienne de Linguistique Appliquée/Canadian Association of Applied Linguistics, Calgary, AB, CANADA
10. **Chu, M-W.**, & Fung, K. (2016, May). *Problems with high school grades being used for university admissions*. Paper presented at the annual meeting of Canadian Society for the Study of Education, Calgary, AB, CANADA
9. Fung, K., & **Chu, M-W.**, (2016, May). *A comparison of educational programs and assessments across Canada*. Paper presented at the annual meeting of Canadian Society for the Study of Education, Calgary, AB, CANADA
8. **Chu, M-W.**, Tang, W., Khan, S., & Leighton, J. P. (2014, May). *Exploratory analyses of affective variables in education*. Paper presented at the annual meeting of Canadian Society for the Study of Education, St. Catharines, ON, CANADA
7. **Chu, M-W.**, & Delos Santos, J. (2014, May). *Performing hands-on science laboratories in school*. Poster presented at the annual meeting of Canadian Society for the Study of Education, St. Catharines, ON, CANADA
6. **Chu, M-W.**, & Leighton, J. P. (2013, June). 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 conducted at the meeting of the Canadian Society for the Study of Education, Victoria, BC, CANADA
5. Seitz, P., **Chu, M-W.**, Fung, K., Latifi, S. M. F. (2013, June). *The CERA graduate debate: Provincial testing in Canada: Yes or No? No*. Paper presented at the annual meeting of Canadian Society for the Study of Education, Victoria, BC, CANADA
4. Gee, D., Rockwell, G., **Chu, M-W.**, Simeon, B. (2013, June). *Assessing serious games*. Paper presented at the annual meeting of Canadian Society for Digital Humanities, Victoria, BC, CANADA.
3. **Chu, M-W.** (2012, May). *Gestalt principles in physics education: Does it develop with teaching experience?* Roundtable paper presented at the annual meeting of the Canadian Society for the Study of Education (CSSE), Waterloo, Ontario, CANADA.
2. Seitz, P., **Chu, M-W.**, Bustos, M., & Leighton, J. P. (2012, May). Creating safe classroom environments using the learning errors and formative feedback (LEAFF) model. In C. Poth & U. Luhanga (Chair), *Conceptual and technical advances to enhance teaching and learning environments*. Symposium conducted at the meeting of the Canadian Society for the Study of Education (CSSE), Waterloo, Ontario, CANADA.
1. **Chu, M-W.** (2012, February). *Pre-service teachers' emphasis and focus on the physics program-of-study*. Poster session presented at the annual meeting of Western Canadian Association for Student Teaching (WestCAST), Calgary, Alberta, CANADA.

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

2. **Chu, M-W.**, & Leighton, J. P. (2012, May) *Investigating computer-simulated laboratory assessments using the learning errors and formative feedback (LEAFF) model*. Poster

delivered for the Partnership Grant – Learning Environments Across Disciplines (LEADs), McGill University, Montreal, Quebec, CANADA.

1. Leighton, J. P., & **Chu, M-W.** (2012, June) *Review of innovations in the science of assessment*. Presentation delivered for the Partnership Grant – Learning Environments Across Disciplines (LEADs), McGill University, Montreal, Quebec, CANADA.

Refereed Local Presentations (Number of presentations: 14, Number of first author presentations: 7)

14. Brandon, J., Stelmach, B., Mombourquette, C., Hunter, D., Friesen, S., & **Chu, M-W.**, (2020, April). 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). Presentation presented at the annual meeting of the College of Alberta School Superintendent Learning Conference, Edmonton, AB, CANADA
13. **Chu, M-W.**, & Bawel, B. (2017, April). *Development of a digital game-based science assessment using evidence-centered game design*. Paper presented at the annual meeting of IDEAS: Designing for Innovation, Calgary, AB, CANADA
12. **Chu, M-W.**, & Fowler, T. A. (2016, May). *Use of formative assessments and feedback in a large-class environment*. Poster presented at the annual meeting of University of Calgary Conference on Postsecondary Learning and Teaching, Calgary, AB, CANADA
11. Fowler, T. A., & **Chu, M-W.** (2016, May). *Disconnect in designing virtual learning spaces*. Poster presented at the annual meeting of University of Calgary Conference on Postsecondary Learning and Teaching, Calgary, AB, CANADA
10. Fowler, T. A., & **Chu, M-W.** (2016, May). *Carving out space for creativity in higher education*. Poster presented at the annual meeting of University of Calgary 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). *World café-style discussions of innovation and entrepreneurship education*. Presentation presented at the annual meeting of 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, July). *“All for one and one for all”: An innovative approach for enhancing TA and instructor experiences in multi-section courses*. Poster presented at the Centre for Teaching and Learning’s Teaching Big: The Joy of Large Classes, Edmonton, Alberta, 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 presented at the Centre for Teaching and Learning’s Teaching Big: The Joy of Large Classes, Edmonton, Alberta, 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 session presented at the 5th Annual Festival of Teaching, Edmonton, Alberta, CANADA.

5. **Chu, M-W.**, & Stafiej, S. T. (2012, March). *Acing the final: Strategies to overcome exam anxiety*. Presentation presented at the 2nd Annual Edmonton Community Mental Health Symposium, Edmonton, Alberta, CANADA.
4. **Chu, M-W.**, & Gomez, M. (2012, March). *Relationship between teaching experiences and using gestalt principles in the classroom*. Poster session presented at the 5th Annual G. M. Dunlop Graduate Student Colloquium, Edmonton, Alberta, CANADA.
3. **Chu, M-W.** (2011, March). *Curricular emphases in Alberta's physics program-of-study: A mixed method study*. Presentation presented at the 4th Annual G. M. Dunlop Graduate Student Colloquium, Edmonton, Alberta, 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 session presented at the 4th Annual Festival of Teaching, Edmonton, Alberta, CANADA.
1. **Chu, M-W.** & Moore, E. (2011, March). *Student-teachers' attitude toward educational assessment: A longitudinal study*. Paper presented at the Third Annual Secondary Education Graduate Student Association and Elementary Education: Graduate Student Association Research Showcase "Sustaining Community", Edmonton, Alberta, 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*. Presented at the Alberta Research Network meeting of Alberta Education, 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*. Presented at the Alberta Research Network meeting of Alberta Education, 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*. Presented at the Alberta Research Network meeting of Alberta Education, 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 presented at the 2018 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 presented at the 2018 Alberta Education Internship Research Showcase, Edmonton, AB, CANADA.
4. **Chu, M-W.** (2018, March). *Validating Authentic Assessments: Ensuring Individualized Program Planning Knowledge and Skills in Pre-service Teachers*. Presentation presented at the Werklund School of Education Teaching and Learning Grants Panel, University of Calgary, Calgary, Alberta, 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. Invited presentation for the Scholarship of Teaching and Learning Grant Panel, Werklund School of Education, University of Calgary.

2. **Chu, M-W.**, & Fowler, T. A. (2016, August). *Success for all students: Maximizing continuous formative feedback*. Paper presented at the annual meeting of the Partner Research Schools Conference, Calgary, AB, CANADA
1. **Chu, M-W.** & Bechtel, R. (2009, November). *Science Teachers in the Research Lab*. Poster presented at the Alberta Teachers' Association Science Council Annual Conference, Red Deer, AB.

Non-refereed Contributions (Number of contribution: 3)

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 interim report (2019-0027)*. Alberta Education.
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). CBE K-9 learning leader professional learning research summary. Commissioned report presented to the Calgary Board of Education, Calgary, AB, CANADA

Research Funding

(Total grant funding to date: \$1,052,399.88)

Funding Agency	Name of Project	Role	Duration of Funding	Amount
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
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Awards

(Total award to date: \$11,495)

Research (Total: \$9695)

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)

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 Experiences

Academic Appointment

Associate Professor at the University of Calgary
Werklund School of Education

July 2020 – current

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 Assistant

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

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. Currently, we are conducting a validation and reliability study on the two major assessment tasks associated with this course.

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

Research Design and Statistics (EDER 603.05/701.011 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)

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

Thomasz Guzowski (Doctor of Education): Co-Supervisor (July 2018-Current)

¹Alberta Graduate Excellence Scholarship recipient

Master Students (Main Supervisor or Co-Supervisor)

Peter Mattingly (Master of Arts): Supervisor (September 2017-Current)^{2,3}

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

²Graduate Programs in Education Engagement Scholarship recipient

³Donna B. Rediger Graduate Scholarship in Education recipient

Doctoral Students (Supervisory Committee)

Kathy Salmon (Doctor of Education, July 2019-Current)

Chandra Lebenhagen (Doctor of Education, July 2018-Current)

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

Brad Colitis (Doctor of Education; January 2018-Current)

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

Doctoral Students (Dissertation Examiner)

Yonatan Porat (Doctor of Education; October 2018)

Kyla McLeod (Doctor of Education; November 2017)

Sharaz Khan (Doctor of Education; September 2017)

Professional and University Service

Professional Service

President Elect 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 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.

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

Academic Coordinator of Doctor of Education (EdD) – Learning Sciences Current

Description: guided students through the application process as well as their EdD program once admitted

Time Committed: 5 hours/week

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.

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.
