OKAN BULUT

CONTACT INFORMATION

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EDUCATION

University of Minnesota, Minneapolis, MN, USA

Ph.D., Educational Psychology - Quantitative Methods in Education, June 2013

M.A., Educational Psychology - Quantitative Methods in Education, January 2010

Adnan Menderes University, Aydin, TURKEY

B.A., Elementary Education, June 2006

ACADEMIC POSITIONS

Professor   July, 2024 to Now
University of Alberta (Edmonton, AB)
Faculty of Education
Program: Measurement, Evaluation, and Data Science (MEDS)

Associate Professor   July, 2018 to June, 2024
University of Alberta (Edmonton, AB)
Faculty of Education
Program: Measurement, Evaluation, and Data Science (MEDS)

Assistant Professor   September, 2014 to June, 2018
University of Alberta (Edmonton, AB)
Faculty of Education
Program: Measurement, Evaluation, and Data Science (MEDS)

NON-ACADEMIC POSITIONS

Psychometrician   May, 2013 to October, 2014
American Institutes for Research (Washington, DC)
Assessment Program
Project: Statewide Alternate Assessments for Students with Disabilities

Research Fellow   September, 2012 to May, 2013
Pearson Assessments (Bloomington, MN)
Clinical Assessments
Project: Technical Evaluation of Behavioral and Intelligence Tests

RESEARCH INTERESTS

Artificial intelligence in education, educational data mining, learning analytics, computerized and digital assessments, computational psychometrics, and statistical programming using the R programming language

TEACHING EXPERIENCE

- Instructor and course developer, *Analyzing Survey Data with R* (Pluralsight)
- Instructor and course developer, *Reshaping Data with R* (Pluralsight)
- Instructor and course developer, *EDPY 607 Measurement Theory II* (U of Alberta)
- Instructor and course developer, *EDPY 504 Survey Design & Implementation* (U of Alberta)
- Instructor, *EDPY 303 Educational Assessment* (U of Alberta)

- Instructor, *EDPY 507 Measurement Theory I* (U of Alberta)
- Instructor, *EDPY 605 Quantitative Methods II* (U of Alberta)
- Instructor, *EDPY 501 Introduction to Data Analysis in Educational Research* (U of Alberta)

CURRENT
RESEARCH
GRANTS
(TOTAL: $480,061)

Evaluating the Impact of Generative AI on the Sustainability of Assessments in Higher Education
- **Role:** Principal Investigator
- **Grant Title:** Research Development Fund
- **Funding Source:** Worldwide Universities Network & University of Alberta
- **Awarded Amount:** £9,628 + $5000 (2025-2026)

Improving Canadian Teachers' Assessment Literacy and Decision-Making through Self-Directed Professional Development
- **Role:** Principal Investigator
- **Grant Title:** Insight Grant
- **Funding Source:** Social Sciences and Humanities Research Council of Canada
- **Awarded Amount:** $241,984 (2023-2028)

Enhancing Students' Reasoning and Decision-making Skills: Science, Values, and Contradictions in Socioscientific Contexts
- **Role:** Co-PI (PI: Mijung Kim - University of Alberta)
- **Grant Title:** Insight Grant
- **Funding Source:** Social Sciences and Humanities Research Council of Canada
- **Awarded Amount:** $140,379 (2023-2028)

Many Teacher Emotions: Setting the Stage for a Global Study on Teachers' Emotions
- **Role:** Co-PI (PI: Lia Daniels - University of Alberta)
- **Grant Title:** KIAS Cluster Grant
- **Funding Source:** The Kule Institute for Advanced Study
- **Awarded Amount:** $75,000 (2025-2027)

PREVIOUS
RESEARCH
GRANTS

Identifying the Predictors of Mathematics Anxiety, Confidence, and Performance in Canada: An Educational Data Mining Approach
- **Role:** Principal Investigator
- **Grant Title:** Research Partnership Grant
- **Funding Source:** Alberta Education
- **Awarded Amount:** $14,960 (2022-2024)

Examining Scoring Variability of the Casper Test: An Application of Explanatory Item Response Modeling
- **Role:** Principal Investigator
- **Grant Title:** Alo Grant
- **Funding Source:** Altus Assessments Inc.
- **Awarded Amount:** $20,000 USD (2021-2024)

Factors Influencing Observers' Interpretations of School Principals' Gestures
- **Role:** Co-PI (PI: Darryl Hunter - University of Alberta)
- **Grant Title:** Killam Research Fund Research Cornerstone Grant
- **Funding Source:** University of Alberta
- **Awarded Amount:** $48,000 (2023-2024)

Climate Change Surveillance for Chronic Health Effects in Vulnerable Populations
- **Role:** Co-Investigator (PI: Shelby Yamamoto - University of Alberta)
- **Grant Title:** Enhanced Surveillance for Chronic Disease Program
- **Funding Source:** Public Health Agency of Canada
- **Awarded Amount:** $962,322 (2020-2024)

Preparing Cities for Climate Change
- **Role:** Co-Investigator (PI: Shelby Yamamoto - University of Alberta)
- **Grant Title:** Operating Grants: Data Analysis Using Existing Databases and Cohorts
- **Funding Source:** Canadian Institutes of Health Research
- **Awarded Amount:** $98,271 (2022-2023)

Providing Students with a Voice: A Measure of Students' Socio-Emotional Well-Being to Optimize Learning for All Students
- **Role:** Principal Investigator
- **Grant Title:** Research Partnership Grant
- **Funding Source:** Alberta Education
- **Awarded Amount:** $45,123 (2019-2022)

Automatic Generation of Passages for Reading Comprehension: An Artificial Intelligence Approach
- **Role:** Principal Investigator
- **Grant Title:** Support for the Advancement of Scholarship (SAS) Grant
- **Funding Source:** University of Alberta
- **Awarded Amount:** $6,895 (2020-2021)

Integrating Theory and Practice to Enhance Inclusive Education in an Undergraduate Teacher Program
- **Role:** Co-Investigator (PI: Denyse Hayward - University of Alberta)
- **Grant Title:** Alberta Education Conditional Grant Funding
- **Funding Source:** Alberta Education
- **Awarded Amount:** $49,276 (2018-2022)

Public Health Messaging Insights in Alberta During Wave 1 of COVID-19: A Complexity-Informed Mixed Methods Design for Rapid Response to Big Data Integration
- **Role:** Co-Investigator (PI: Cheryl Poth - University of Alberta)
- **Grant Title:** Support for the Advancement of Scholarship (SAS) Grant
- **Funding Source:** University of Alberta
- **Awarded Amount:** $7,000 (2020-2021)

Climate Change, Older Adults and Immigrants: Exploring Community Vulnerability and Resilience
- **Role:** Co-Investigator (PI: Shelby Yamamoto - University of Alberta)
- **Grant Title:** Cities IPCC Legacy Research Grant Program
- **Funding Source:** The City of Edmonton & Alberta Ecotrust
- **Awarded Amount:** $50,000 (2019-2021)

Improving the Quality and Quantity of Feedback via Interactive Score Reporting
- **Role:** Principal Investigator
- **Grant Title:** Teaching and Learning Enhancement Fund (TLEF)
- **Funding Source:** University of Alberta
- **Awarded Amount:** $62,521 (2018-2021)

Building Community Climate Change Knowledge and Resilience in Older Adults and Immigrants
- **Role:** Co-Investigator (PI: Shelby Yamamoto - University of Alberta)
- **Grant Title:** North American Partnership for Environmental Community Action (NAPECA)
- **Funding Source:** Commission for Environmental Cooperation
- **Awarded Amount:** $155,000 (2019-2021)

Developing an Interactive Score Reporting System to Improve the Quality of Formative Feedback in Higher Education
- **Role:** Principal Investigator
- **Grant Title:** Insight Development Grant
- **Funding Source:** Social Sciences and Humanities Research Council of Canada
- **Awarded Amount:** $59,994 (2016-2019)

Effect of Detailed Score Reporting on Student Learning
- **Role:** Co-Investigator (PI: Vijay Daniels - University of Alberta)
- **Grant Title:** Teaching and Learning Enhancement Fund (TLEF)
- **Funding Source:** University of Alberta
- **Awarded Amount:** $59,171 (2017-2019)

Examining the Measurement Properties of What Albertans Know about Fetal Alcohol Spectrum Disorders Survey
- **Role:** Principal Investigator
- **Grant Title:** SAGE Secondary Data Use Grant
- **Funding Source:** PolicyWise for Children & Families
- **Awarded Amount:** $5,000 (2018-2019)

Trajectories in Student Mathematics Performance
- **Role:** Research Partner (PI: Lynn McGarvey - University of Alberta)
- **Grant Title:** The Research Partnership Program
- **Funding Source:** Alberta Education
- **Awarded Amount:** $24,100 (2017-2018)

Improving Instructors' Understanding of Universal Student Ratings of Instruction (USRI) at the Faculty of Education: A Pilot Study
- **Role:** Principal Investigator
- **Grant Title:** Support for the Advancement of Scholarship (SAS) Grant
- **Funding Source:** University of Alberta
- **Awarded Amount:** $6,807 (2017-2018)

Understanding Nonresponse Behaviours of Special Education Students in Reading and Mathematics Assessments Using Cognitive Diagnostic Modelling
- **Role:** Principal Investigator
- **Grant Title:** Support for the Advancement of Scholarship (SAS) Grant
- **Funding Source:** University of Alberta
- **Awarded Amount:** $6,384 (2015-2016)

TRAVEL & PROFESSIONAL DEVELOPMENT GRANTS

Teaching and Learning Enhancement Fund
- **Funding Source:** University of Alberta
- **Awarded amount:** $2,860 (2018-2019)

Killam Research Fund – Cornerstones Grant Program
- **Funding Source:** University of Alberta
- **Awarded amount:** $4,200 (2017-2018)

Support for the Advancement of Scholarship (SAS) Travel Grant
- **Funding Source:** University of Alberta
- **Awarded amount:** $1,200 (2015-2016)

AWARDS

• Martha Cook Piper Research Prize by the University of Alberta	2023 to 2024
• Journal of Intelligence Young Investigator Award	2022 to 2023
• Coutts-Clarke Fellowship by University of Alberta	2021 to 2022
• Distinguished Paper Award by AERA	2017 to 2018
• Alicia Cascallar Outstanding Paper Award by NCME	2015 to 2016
• John P. Yackel/Pearson Assessment Graduate Fellowship	2012 to 2013
• Research Grant from Applied Psychological Measurement, Inc.	2012 to 2013
• Mary Corcoran Graduate Fellowship at the University of Minnesota	2011 to 2012
• Graduate Scholarship from the Turkish Ministry of National Education	2007 to 2009

BOOKS

[1] **Bulut, O.**, Shin, J., Yildirim-Erbasli, S., & Desjardins, C. D. (In preparation). *Educational data mining: Applications in digital assessments.* Boca Raton, FL: CRC Press.

[2] **Bulut, O.** (2020). *Conducting Monte Carlo simulations in R*. University of Alberta Education and Research Archive. doi:10.7939/r3-y066-fs55

[3] Desjardins, C. D., & **Bulut, O.** (2018). *Handbook of educational measurement and psychometrics using R*. Boca Raton, FL: CRC Press.

BOOK CHAPTERS

[1] Gorgun, G., Tan, B., & **Bulut, O.** (In press). Designing classroom assessments with generative AI: A teacher-in-the-loop framework. In S. Papadakis (Ed.), *Teaching with artificial intelligence: A guide for primary and elementary educators*. Routledge.

[2] Wongvorachan, T., & **Bulut, O.** (2025). The use of natural language processing in learning analytics. In M. Saqr & S. López-Pernas (Eds.), *Advanced learning analytics methods. AI, Precision and Complexity*. Springer. https://lamethods.org/book2/chapters/ch09-nlp/ch09-nlp.html

[3] Wongvorachan, T., & **Bulut, O.** (2025). The advanced applications of psychological networks with exploratory graph analysis. In M. Saqr & S. López-Pernas (Eds.), *Advanced learning analytics methods. AI, Precision and Complexity*. Springer. https://lamethods.org/book2/chapters/ch13-ega/ch13-ega.html

[4] **Bulut, O.** (2025). Creating value from process data: Implications for multistage testing. In D. Yan, A. von Davier, & D. Weiss (Eds.), *Research for practical issues and solutions in computerized multistage testing* (pp. 242-261). Routledge. doi:10.4324/9780429263491-16

[5] **Bulut, O.** (2024). From adaptive testing to personalized adaptive testing: Applications of recommender systems. In H. Jiao & R. W. Lissitz (Eds.), *Machine learning, natural language processing, and psychometrics* (pp. 177-199). Information Age Publisher.

[6] **Bulut, O.**, Gorgun, G., & Yildirim-Erbasli, S. (2024). Assessment analytics for digital assessments: Identifying, modeling, and interpreting behavioral engagement. In D. Ifenthaler & M. Sahin, *Assessment analytics in education - designs, methods and solutions* (pp. 35-60). Springer. doi:10.1007/978-3-031-56365-2_3

[7] Yildirim-Erbasli, S., Gorgun, G., & **Bulut, O.** (2024). Enhancing self-regulated learning with artificial intelligence-powered learning analytics. In N. Kavaklı Ulutaş & D. Höl, *Emergent practices of learning analytics in K-12 classrooms* (pp. 57-83). Charlotte, NC: IGI Global. doi:10.4018/979-8-3693-0066-4.ch004

[8] **Bulut, O.**, & Cui, Y. (2021). Validating the findings of a survey research study. In U. Luhanga & A. G. Harbaugh (Eds.), *Basic elements of survey research in education: Addressing the problems your advisor never told you about* (pp. 719-746). Information Age Publishing.

[9] Gierl, M. J., **Bulut, O.**, & Zhang, X. (2018). Using computerized formative testing to support personalized learning in higher education: An application of two assessment technologies. In R. Zheng (Ed.), *Digital technologies and instructional design for personalized learning* (pp. 99-119). IGI Global.

NON-REFEREED ARTICLES

[1] **Bulut, O.** (2021). Lexicon-based sentiment analysis using R. Towards Data Science. https://towardsdatascience.com/.

[2] **Bulut, O.** (2021). Likert scales: Friend or foe? Towards Data Science. https://towardsdatascience.com/.

[3] **Bulut, O.** (2021). AI can bring fairness to assessments but are we ready for it? Towards AI. https://medium.com/towards-artificial-intelligence.

[4] **Bulut, O.** (2021). How AI will end the one-size-fits-all approach in human assessment. Towards AI. https://medium.com/towards-artificial-intelligence.

[5] **Bulut, O.** (2021). Too many survey questions? Let ant colony optimization handle it. Towards Data Science. https://towardsdatascience.com/.

[6] **Bulut, O.** (2021). Effective feature selection: Recursive feature elimination using R. Towards Data Science. https://towardsdatascience.com/.

[7] **Bulut, O.** (2020). Testing for measurement invariance in R. Towards Data Science. https://towardsdatascience.com/.

REFEREED JOURNAL ARTICLES & PREPRINTS

[1] Mazzullo, E., Salma, J., Walsh, C. A., Au, A., Sidani, S., Agrawal, S., **Bulut, O.**, & Guruge, S. (Accepted). Neighborhood social influences on loneliness in older immigrants in two Canadian provinces. *Canadian Journal on Aging*.

[2] Domnich, I., Evenden, M. L., Mori, B. A., & Bulut, O. (In press). What's bugging you? A survey of producer perspectives on entomology extension in agriculture in Alberta, Canada. *Journal of Integrated Pest Management*. doi:10.1093/jipm/pmaf001

[3] Tan, B., Armoush, N., Mazzullo, E., **Bulut, O.**, & Gierl, M. J. (2025). A review of automatic item generation techniques leveraging large language models. *International Journal of Assessment Tools in Education,12*(2), 317-340. doi:10.21449/ijate.1602294

[4] **Bulut, O.**, & Zheng, Y. (2025). Editorial: Special issue on artificial intelligence and machine learning in educational measurement (Part 2). *Chinese/English Journal of Educational Measurement and Evaluation, 6*(1), Article 1. doi:10.59863/PFLW4433

[5] He, S., **Bulut, O.**, Cui, Y., & Wongvorachan, T. (2025). Uncovering dimensions of learning management system event logs: Insights from exploratory factor analysis, psychometric network analysis, and consensus hierarchical clustering. *Chinese/English Journal of Educational Measurement and Evaluation, 6*(1), Article 7. doi:10.59863/FZRN7818

[6] Yildirim-Erbasli, S. N., **Bulut, O.**, Demmans Epp, C., & Cui, Y. (2025). Advancing students' assessment experiences with conversational agents. *Educational Technology Research and Development*. Advance online publication. doi:10.1007/s11423-025-10472-3

[7] Aydin, B., Kışla, T., Elmas, N. T., & **Bulut, O.** (2025). Automated scoring in the era of artificial intelligence: An empirical study with Turkish essays. *PsyArXiv*. doi:10.17605/OSF.IO/QBCK7

[8] Kilmen, S., & **Bulut, O.** (2025). Shortening psychological scales: Semantic similarity matters. *Educational and Psychological Measurement*. Advance online publication. doi:10.1177/00131644251319047

[9] Gorgun, G., & **Bulut, O.** (2024). Instruction-tuned large-language models for quality control in automatic item generation: A feasibility study. *Educational Measurement: Issues and Practice*. Advance online publication. doi:10.1111/emip.12663

[10] **Bulut, O.**, & Zheng, Y. (2024). Editorial: Special issue on artificial intelligence and machine learning in educational measurement (Part 1). *Chinese/English Journal of Educational Measurement and Evaluation, 5*(3), Article 1. doi:10.59863/BDQT2557

[11] **Bulut, O.**, Casabianca, J. M., Slater, S. C., Jiao, H., Song, D., Ormerod, C. M., Fabiyi, D. G., Ivan, R., Walsh, C., Rios, O., Wilson, J., N., S., Wongvorachan, T., Liu, J. X., Tan, B., & Morilova, P. (2024). The rise of artificial intelligence in educational measurement: Opportunities and ethical challenges. *Chinese/English Journal of Educational Measurement and Evaluation, 5*(3), Article 3. doi:10.59863/MIQL7785.

[12] **Bulut, O.**, Gorgun, G., & Yildirim-Erbasli, S. N. (2024). The impact of frequency and stakes of formative assessment on student achievement in higher education: A learning analytics study. *Journal of Computer Assisted Learning, 41*(1), e13087. doi:10.1111/jcal.13087

[13] Lu, C., & **Bulut, O.** (2024). Does higher endorsement with collaboration lead to better performance on collaborative problem solving?: An explanatory item response approach to cross-cultural comparisons. *Frontiers in Psychology, 15*, 1468533. doi:10.3389/fpsyg.2024.1468533

[14] Liu, X., **Bulut, O.**, Cui, Y., & Gao, Y. (2024). Uncovering adults' problem-solving patterns from process data with Hidden Markov model and network analysis. *Journal of Computer Assisted Learning, 41*(1), e13089. doi:10.1111/jcal.13089

[15] Öz, E. **Bulut, O.**, Cellat, Z. F., & Yürekli, H. (2024). Stacking: An ensemble learning approach to predict student performance in PISA 2022. *Education and Information Technologies*. Advance online publication. doi:10.1007/s10639-024-13110-2

[16] Lu, C., **Bulut, O.**, Epp, Carrie Demmans, & Gierl, M. J. (2024). Impacts of engagement on academic outcomes in technology-enhanced learning. *Distance Education*. doi:10.1080/01587919.2024.2373297

[17] **Bulut, O.**, Wongvorachan, T., He, S., & Lee, S. (2024). Enhancing high-school dropout identification: A collaborative approach integrating human and machine insights. *Discover Education, 3*, Article 109. doi:10.1007/s44217-024-00209-4

[18] Tan, B., Armoush, N., Mazzullo, E., **Bulut, O.**, & Gierl, M. J. (2024). A review of automatic item generation techniques leveraging large language models. *EdArXiv*. doi:10.35542/osf.io/6d8tj

[19] Lu, C., **Bulut, O.**, Epp, Carrie Demmans, & Gierl, M. J. (2024). Impacts of engagement on academic outcomes in technology-enhanced learning. *Distance Education*. Advanced online publication. doi:10.1080/01587919.2024.2373297

[20] Gorgun, G., & **Bulut, O.** (2024). Exploring quality criteria and evaluation methods in automated question generation: A comprehensive survey. *Education and Information Technologies*. Advanced online publication. doi:10.1007/s10639-024-12771-3

[21] Wongvorachan, T., **Bulut, O.**, Liu, J. X., & Mazzullo, E. (2024). A comparison of bias mitigation techniques for educational classification tasks using supervised machine learning. *Information,15*(6), 326. doi:10.3390/info15060326

[22] Sayin, A., & **Bulut, O.** (2024). The difference between estimated and perceived item difficulty: An empirical study. *International Journal of Assessment Tools in Education, 11*(2), 368–387. doi:10.21449/ijate.1376160

[23] Bulut, H. C., **Bulut, O.**, & Clelland, A. (2024). A psychometric network analysis approach for detecting item wording effects in self-report measures across subgroups. *Field Methods*. Advanced online publication. doi:10.1177/1525822X241247444

[24] Poth, C., Wongvorachan, T., **Bulut, O.**, & Otto, S. (2024). Adaptive case study-mixed methods design practices for researchers studying complex phenomena. *Journal of Mixed Methods Research*. Advanced online publication. doi:10.1177/15586898241250217

[25] Madland, C., Irvine, V., DeLuca, C., & **Bulut, O.** (2024). Developing the technology-integrated assessment framework. *The Open/Technology in Education, Society, and Scholarship Association Journal, 4*(1), 1–19. doi:10.18357/otessaj.2024.4.1.63

[26] Madland, C., Irvine, V., DeLuca, C., & **Bulut, O.** (2024). Technology-integrated assessment: A literature review. *The Open/Technology in Education, Society, and Scholarship Association Journal, 4*(1), 1–48. doi:10.18357/otessaj.2024.4.1.57

[27] **Bulut, O.**, Gorgun, G., & He, S. (2024). Unsupervised anomaly detection in sequential process data: Insights from PIAAC problem-solving tasks. Zeitschrift für Psychologie, 232(2), 74-94. doi:10.1027/2151-2604/a000558

[28] Liu, J. X., **Bulut, O.**, & Johnson, M. D. (2024). Examining position effects on students' ability and test-taking speed in the TIMSS 2019 problem solving and inquiry tasks. Psychology International, 6(2), 492-508. doi:10.3390/psycholint6020030

[29] **Bulut, O.** (2024). Psycho-educational assessments: Theory and practice. *Journal of Intelligence,12*(3), 31. doi:10.3390/jintelligence12030031

[30] Firoozi, T., **Bulut, O.**, & Gierl, M. J. (2023). Language models in automated essay scoring: Insights for the Turkish language. *International Journal of Assessment Tools in Education, 10*(Special Issue), 53-67. doi:10.21449/ijate.1394194

[31] Mazzullo, E., **Bulut, O.**, Wongvorachan, T., & Tan, B. (2023). Learning analytics in the era of large language models. *Analytics, 2*(4), 877-898. doi:10.3390/analytics2040046

[32] **Bulut, O.**, Gorgun, G., & Karamese, H. (2023). Incorporating test-taking engagement into multistage adaptive testing design for large-scale assessments. *Journal of Educational Measurement*. Advance online publication. doi:10.1111/jedm.12380

[33] Naeim, M. Y., **Bulut, O.**, & Tan, B. (2023). Predicting reading comprehension performance based on student characteristics and item properties. *Studies in Educational Evaluation, 79*, 101309. doi:10.1016/j.stueduc.2023.101309

[34] **Bulut, O.**, Shin, J., Yildirim-Erbasli, S. N., Gorgun, G., & Pardos, Z. A. (2023). An introduction to Bayesian knowledge tracing with pyBKT. *Psych, 5*(3), 770-786. doi:10.3390/psych5030050

[35] **Bulut, O.**, Gorgun, G., Wongvorachan, T., & Tan, B. (2023). Rapid guessing in low-stakes assessments: Finding the optimal response time threshold with random search and genetic algorithm. *Algorithms, 16*(2), 89. doi:10.3390/a16020089

[36] **Bulut, O.**, Gorgun, G., Yildirim-Erbasli, S. N., Wongvorachan, T., Daniels, L. M., Gao, Y., Lai, K. W., & Shin, J. (2023). Standing on the shoulders of giants: Online formative assessments as the foundation for predictive learning analytics models. *British Journal of Educational Technology, 54*(1), 19-39. doi:10.1111/bjet.13276

[37] **Bulut, O.**, Bulut, H. C., Cormier, D. C., Ilgun Dibek, M., & Sahin Kursad, M. (2023). The effects of providing students with revision opportunities in alternate assessments. *Educational Assessment, 28*(1), 48-63. doi:10.1080/10627197.2022.2138322

[38] Gorgun, G., & **Bulut, O.** (2023). Incorporating test-taking engagement into the item selection algorithm in low-stakes computerized adaptive tests. *Large-Scale Assessments in Education, 11*, Article 27. doi:10.1186/s40536-023-00177-5

[39] Yildirim-Erbasli, S. N., & **Bulut, O.** (2023). Conversation-based assessment: A novel approach to boosting test-taking effort in digital formative assessment. *Computers & Education: Artificial Intelligence, 4*, 100135. doi:10.1016/j.caeai.2023.100135

[40] Archer, E., **Bulut, O.**, Zenisky, A., Grover, R., & Randall, J. (2023). Editorial for online assessment for humans: Advancements, challenges and futures for digital assessment. *Frontiers in Education, 8*(1230623). doi:10.3389/feduc.2023.1230623

[41] Bulut, H. C., **Bulut, O.**, & Arikan, S. (2023). Evaluating group differences in online reading comprehension: The impact of item properties. *International Journal of Testing,23*(1), 10-33. doi:10.1080/15305058.2022.2044821

[42] Yildirim-Erbasli, S. N., **Bulut, O.**, Demmans Epp, C., & Cui, Y. (2023). Conversation-based assessments in education: Design, implementation, and cognitive walkthroughs for usability testing. *Journal of Educational Technology Systems, 52*(1), 27–51. doi:10.1177/00472395231178943

[43] Kilmen, S., & **Bulut, O.** (2023). Scale abbreviation with recursive feature elimination and genetic algorithms: An illustration with the test emotions questionnaire. *Information,14*(2), 63. doi:10.3390/info14020063

[44] Cankaya, O., Rohatyn-Martin, N., Leach, J., Taylor, K., & **Bulut, O.** (2023). Preschool children's loose parts play and the relationship to cognitive development: A review of the literature. *Journal of Intelligence, 11*(8), 151. doi:10.3390/jintelligence11080151

[45] Clelland, A., **Bulut, O.**, King, S., & Johnson, M. D. (2023). Examining the associations between personal protective equipment, training, policy, and acute care workers' psychological distress during the COVID-19 pandemic. *Psych, 5*(3), 802-813. doi:10.3390/psych5030053

[46] Wongvorachan, T., He, S., & **Bulut, O.** (2023). A comparison of undersampling, oversampling, and SMOTE methods for dealing with imbalanced classification in educational data mining. *Information, 14*(1), 54. doi:10.3390/info14010054

[47] McGrew, K. S., Schneider, W. J., Decker, S. L., & **Bulut, O.** (2023). A psychometric network analysis of CHC intelligence measures: Implications for research, theory and interpretation of broad CHC scores "beyond g". *Journal of Intelligence, 11*(1), 19. doi:10.3390/jintelligence11010019

[48] Rinaldi, C. M., **Bulut, O.**, Muth, T., & Di Stasio, M. (2023). The influence of parenting dimensions and junior high school students' involvement in bullying. *Journal of School Violence, 22*(2), 183-197. doi:10.1080/15388220.2022.2162534

[49] **Bulut, O.** (2022). Editorial: Special issue on artificial intelligence, machine learning, and natural language processing applications in education. *Journal of Applied Testing Technology, 23*(Special Issue 1), 1-3.

[50] Firoozi, T., **Bulut, O.**, Demmans Epp, C., Abadi, A. N., & Barbosa, D. (2022). The effect of fine-tuned word embedding techniques on the accuracy of automated essay scoring systems using neural networks. *Journal of Applied Testing Technology, 23*(Special Issue 1), 21-29.

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[7] Yildirim-Erbasli, S. N., Demmans Epp, C., **Bulut, O.**, & Cui, Y. (2023). Design and evaluation of a conversational agent for formative assessment in higher education. In P. Blikstein, J. Van Aalst, R. Kizito, & K. Brennan (Eds.), *Proceedings of the 17th International Conference of the Learning Sciences* (pp. 194-201), Montreal, QC, Canada: International Society of the Learning Sciences.

[8] Yildirim-Erbasli, S. N., & **Bulut, O.** (2023). Innovating assessment with conversational agents: A technology-enhanced approach to formative assessments. *Proceedings of the IEEE International Conference on Advanced Learning Technologies* (pp. 331-335), Orem, UT. doi:10.1109/ICALT58122.2023.00103

[9] **Bulut, O.**, MacIntosh, A., & Walsh, C. (2022). Leveraging natural language processing for quality assurance of a situational judgement test. In M. M. Rodrigo, N. Matsuda, A. I. Cristea,& V. Dimitrova (Eds.), *Artificial intelligence in education. Posters and late breaking results, workshops and tutorials, industry and innovation Tracks, practitioners' and doctoral consortium* (pp. 84-88). Lecture Notes in Computer Science, vol 13356. Springer, Cham. doi:10.1007/978-3-031-11647-6_

[10] Gorgun, G., & **Bulut, O.** (2022). Considering disengaged responses in Bayesian and deep knowledge tracing. In M. M. Rodrigo, N. Matsuda, A. I. Cristea, & V. Dimitrova (Eds.), *Artificial intelligence in education. Posters and late breaking results, workshops and tutorials, industry and innovation Tracks, practitioners' and doctoral consortium* (pp. 591-594). Lecture Notes in Computer Science, vol 13356. Springer, Cham. doi:10.1007/978-3-031-11647-6_122

[11] Shin, J., **Bulut, O.**, & Pinto, W. N. (2022, July). E-learning preparedness: A key consideration to promote fair learning analytics development in higher education. In A. Mitrovic & N. Bosch (Eds.), *Proceedings of the 15th International Conference on Educational Data Mining*, (pp. 673–678). Durham, UK: International Educational Data Mining Society. doi:10.5281/zenodo.6853111

[12] Walsh, C., MacIntosh, A., **Bulut, O.**, & Shin, J. (2022). What are we measuring?: A topic modeling framework to map professionalism aspects to responses in a situational judgment test. In A. Wise, R. Martinez-Maldonado, & I. Hilliger (Eds.), *Proceedings of the 12th International Conference on Learning Analytics & Knowledge (LAK22)* (pp. 39-41). Society for Learning Analytics Research (SoLAR).

[13] Wongvorachan, T., & **Bulut, O.** (2022). Feedback generation through artificial intelligence. In A. Bozkurt, T. Greene, & V. Irvine (Eds.), *Proceedings of the Open/Technology in Education, Society, and Scholarship Association (OTESSA) Conference, 2*(1), 1-9. doi:10.18357/otessac.2022.2.1.125

[14] **Bulut, O.**, & Cutumisu, M. (2017). When technology does not add up: ICT use negatively predicts mathematics and science achievement for Finnish and Turkish students in PISA 2012. In J. Johnston (Ed.), *Proceedings of EdMedia: World Conference on Educational Media and Technology 2017* (pp. 935-945). Waynesville, NC: Association for the Advancement of Computing in Education (AACE).

[15] Cutumisu, M., & **Bulut, O.** (2017). Problem-solving attitudes and gender as predictors of academic achievement in mathematics and science for Canadian and Finnish students in the PISA 2012 assessment. In J. Johnston (Ed.), *Proceedings of EdMedia: World Conference on Educational Media and Technology 2017* (pp. 728-738). Waynesville, NC: Association for the Advancement of Computing in Education (AACE).

[16] Delen, E., & **Bulut, O.** (2011). The relationship between students' exposure to technology and their achievement in science and math. *Proceedings of the 12th International Educational Technology Conference - IETC*, (pp. 1171-1176), Sakarya, Turkey.

TECHNICAL REPORTS

[1] Morris, H., Cottrell-McDermott, C., Hyshka, E., Taylor, M., **Bulut, O.**, Connolly, D., Piggott, B., Staines, A., Issa, T., Gehring, N., Collins, Z., Raza, A., & Salvaggio, G. (2024). Understanding the short- and long-term impacts of the COVID-19 pandemic on people who use substances in Edmonton's inner city: Final report. Edmonton: Inner City Health and Wellness Program.

[2] **Bulut, O.**, Clelland, A., & Wongvorachan, T. (2024). Identifying the predictors of mathematics anxiety, confidence, and performance in Canada: An educational data mining approach. Edmonton, AB: Alberta Education. doi:10.7939/r3-x6q5-de82

[3] **Bulut, O.**, Seitz, P., Deforge, K., Chu, M.-W., Hachem, M., & Gorgun, G. (2020). Measuring students' socio-emotional well-being to optimize learning: Looking beyond academic performance and grades. Edmonton, AB: Alberta Education. doi:10.7939/r3-jkvz-qt28

[4] Cormier, D. C., & **Bulut, O.** (2020). *Developing an intelligent progress monitoring system for Star Assessments*. Wisconsin Rapids, WI: Renaissance Learning Inc.

[5] **Bulut, O.**, & Cormier, D. C. (2019). *Advanced screening approaches with Star Assessments*. Wisconsin Rapids, WI: Renaissance Learning Inc.

[6] **Bulut, O.**, & Cormier, D. C. (2016). *Developing psychometrically sound decision rules for STAR Math*. Wisconsin Rapids, WI: Renaissance Learning Inc.

[7] Cormier, D. C., & **Bulut, O.** (2016). *Developing psychometrically sound decision rules for STAR Reading*. Wisconsin Rapids, WI: Renaissance Learning Inc.

COMPUTER SOFTWARE

[1] **Bulut, O.** (2021). *eirm: Explanatory item response modeling for dichotomous and polytomous item responses*, R package version 0.5.0. doi:10.5281/zenodo.4556285. Available from http://CRAN.R-project.org/package=eirm.

[2] **Bulut, O.**, & Desjardins, C. D. (2018). *profileR: Profile analysis of multivariate data in R* (version 0.3-5). Available from http://CRAN.R-project.org/package=profileR.

[3] Desjardins, C. D., & **Bulut, O.** (2018). *hemp: Handbook of educational measurement and psychometrics using R companion package*. Available from https://github.com/cddesja/hemp.

CONFERENCE
PRESENTATIONS &
POSTERS
(LAST 5 YEARS)

[1] Tan, B., Liu, X., & **Bulut, O.** (2025, September). *Predicting early quitting behavior in TIMSS 2019: Analyzing within-person and between-person response time patterns with n-grams*. Paper to be presented at the Frontier Research in Educational Measurement (FREMO) Conference, Oslo, Norway.

[2] Gorgun, G., **Bulut, O.**, & Lindner, M. A. (2025, August). *Response behavior is a good proxy for difficulty estimation in adaptive learning environments*. Paper to be presented at the European Association for Research on Learning and Instruction (EARLI) Conference, Graz, Austria.

[3] **Bulut, O.**, Liu, J. X., & Demir, H. (2025, July). *Deep reinforcement learning for engagement-aware question selection in adaptive assessment systems*. Poster to be presented at the International Conference on Artificial Intelligence in Education, Palermo, Italy.

[4] Ulitzsch, E., & **Bulut, O.** (2025, June). *Detecting careless responding in the PIRLS 2021 student questionnaire: An IRT mixture modeling approach*. Paper to be presented at the IEA International Research Conference (IEA IRC), Rome, Italy.

[5] Morris, H., Cottrell-McDermott, C., Taylor, M., Hyshka, E., **Bulut, O.**, & Salvalaggio, G. (2025, June). *Assessing the impact of the COVID-19 pandemic on people who use drugs in Edmonton, Canada: Implications for community health nursing practice*. Poster to be presented at the International Council of Nursing Congress, Helsinki, Finland.

[6] Smith-Ackerl, S., Mack, E., Sevigny, P., **Bulut, O.**, & Wallin, J. (2025, June). *Fictional stories with real consequences? A study on youth, media, supportive adults, and suicide*. Paper to be presented at the annual general meeting and national convention of the Canadian Psychological Association, St. John's, NL.

[7] Dufresne, D., Jerez, D., Makowecki, E., Wuest, V., Rabbani, K., Dann, A., Fenwick, D., Martin, R., McMorris, C., Milne, D., Mullen-Wawryk, L., Murphy, L., Ray, A., Sanders, J., Seale, R., Tremblay, M., Pei, J., **Bulut, O.**, & Poth, C. (2025, May). *Prioritizing collaboration in survey development: Lessons from a community-based approach*. 2025 UAlberta Graduate Conference in Education, Edmonton, Alberta.

[8] Hall, M., **Bulut, O.**, Dick, B., Pham, A., & Jones, A. (2025, May). *Burnout in Canadian physiotherapists during COVID-19 - A national survey*. Poster presented at the World Physiotherapy Congress, Tokyo, Japan.

[9] Mazzullo, E., & **Bulut, O.** (2025, April). *Fine-tuning GPT-3.5-Turbo for automatic feedback generation*. Paper presented at the 40th ACM/SIGAPP Symposium on Applied Computing (ACM SAC 2025): Artificial Intelligence for Education, Sicily, Italy.

[10] **Bulut, O.** (2025, April). *AI in educational measurement: Addressing challenges and ensuring responsible use*. In J. Whitmer (Chair), Generative AI in education: Applied ethics & evaluating model performance. Paper presented at the annual meeting of the National Council on Measurement in Education, Denver, CO.

[11] Liu, J. X., & **Bulut, O.** (2025, April). *Sequential modeling of responses and response times in a CAT with LSTM*. In H. Kuang (Chair), Fuse diverse process data in educational measurement. Paper presented at the annual meeting of the National Council on Measurement in Education, Denver, CO.

[12] Mazzullo, E., & **Bulut, O.** (2025, April). *Fine-tuning GPT and Llama for automatic feedback generation: A comparative study*. In O. Bulut (Chair), Leveraging large-language models for operational large-scale assessments: Opportunities and challenges. Paper presented at the annual meeting of the National Council on Measurement in Education, Denver, CO.

[13] Gorgun, G., & **Bulut, O.** (2025, April). *Predicting the item characteristics of scenario-based assessment items*. In O. Bulut (Chair), Leveraging large-language models for operational large-scale assessments: Opportunities and challenges. Paper presented at the annual meeting of the National Council on Measurement in Education, Denver, CO.

[14] Armoush, N., Liu, J. X., & **Bulut, O.** (2025, April). *Optimizing test completion in strictly-timed CATs: A post-hoc simulation*. Paper presented at the annual meeting of the National Council on Measurement in Education, Denver, CO.

[15] He., S., **Bulut, O.**, & Cui, Y. (2025, April). *Preschooler's planning time on problem-solving performances across different task difficulties: Insights from mobile log data*. Paper presented at the annual meeting of the American Educational Research Association, Denver, CO.

[16] Morris, H., Cottrell-McDermott, C., Piggott, B., Hyshka, E., Taylor, M., **Bulut, O.**, Connolly, D., Staines, A., Issa, T., Gehring, N., Collins, Z., Raza, A. & Salvalaggio, G. (2025, January). *Understanding the short- and long-term impacts of the COVID-19 pandemic on people who use substances in Edmonton's inner city: Findings of the 2023 ICHWP cross-sectional survey*. City Wide Nursing Rounds, Faculty of Nursing, University of Alberta.

[17] Mazzullo, E., & **Bulut, O.** (2024, December). Automated feedback generation for open-ended questions: Insights from fine-tuned LLMs. Paper presented at the NeurIPS 2024 Workshop on Large Foundation Models for Educational Assessment, Vancouver, BC.

[18] Connoly, D., Morris, H., Piggott, B., Cottrell-McDermott, C., Hyshka, E., Taylor, M., **Bulut, O.**, Issa, T., & Salvalaggio, G. (2024, November). Co-occurring issues facing patients who use unregulated drugs: Insights from a survey in Edmonton, Canada. Poster presented at the annual meeting of the North American Primary Care Research Group, Quebec City, QC.

[19] Svetina Valdivia, D., **Bulut, O.**, Withrow, A., & Walsh, P. (2024, August). Impact of reversals in categories on IRT model fit and parameter recovery. Poster presented at the annual meeting of the American Psychological Association, Seattle, WA.

[20] Hunt, T. E., Waldron, M. B. K., Tejada, J., Kotera, Y., Sari, M. H., Asanjarani, F., Ashraf, F., Muwonge, C. M., Popa,I-L., Bagdasar, O., Gabriel, F., Kojima, Y., Vione, K. C., Sheffield, D., **Bulut, O.**, & Marmolejo-Ramos, F. (2024, July). Numbers without borders: A comparative study of mathematics anxiety and its predictive factors. Paper presented at the 4th International Conference Opportunities and Challenges of Building Mathematical Resilience, Coventry, UK.

[21] **Bulut, O.**, Clelland, A.C., & Wongvorachan, T. (2024, June). *Identifying the predictors of mathematics performance and math anxiety in Canada: An educational data mining approach*. Paper presented at the annual meeting of the Canadian Society for the Study of Education, Montreal, QC.

[22] **Bulut, O.**, Shin, J., & Pinto Junior, W. N. (2024, April). *Towards fair learning analytics: An application of the Seldonian algorithm*. In Q. He (Chair), Incorporating multiple data sources to explore group strategy variations. Paper presented at the annual meeting of the National Council on Measurement in Education, Philadelphia, PA.

[23] **Bulut, O.**, Gorney, K., & Yildirim-Erbasli, S. N. (2024, April). *Joint modeling of ability and test-taking effort with multidimensional nested logit model*. In B. Arslan (Chair), Unpacking test-taker (dis)engagement: Innovative approaches to enhance validity. Paper presented at the annual meeting of the National Council on Measurement in Education, Philadelphia, PA.

[24] Gorgun, G., & **Bulut, O.** (2024, April). *Using large language models for evaluating item quality in large-scale assessments*. In S. Dai (Chair), Innovations and practices of AI and language models in large-scale assessments. Paper presented at the annual meeting of the National Council on Measurement in Education, Philadelphia, PA.

[25] Firoozi, T., **Bulut, O.**, & Gorgun, G. (2024, April). *Text augmentation for enhancing the accuracy of automated essay scoring*. In H. Jiao & X. Zhai (Chairs), Tackling challenges in automated scoring: Data augmentation, multilingualism, and feedback mechanisms. Paper presented at the annual meeting of the National Council on Measurement in Education, Philadelphia, PA.

[26] Liu, X., **Bulut, O.**, Gao, Y., & Cui, Y. (2024, April). *Uncovering test-takers' problem-solving patterns through Hidden Markov models and network analysis*. Paper presented at the annual meeting of the National Council on Measurement in Education, Philadelphia, PA.

[27] Clelland, A.C., & **Bulut, O.** (2024, April). *Using network psychometrics to identify wording effects in a socioemotional skills survey*. Paper presented at the annual meeting of the National Council on Measurement in Education, Philadelphia, PA.

[28] Tan, B., Armoush, N., **Bulut, O.**, Mazzullo, E., & Gierl, M. (2024, April). *Leveraging pre-trained large language models for automatic item generation: A scoping review*. Paper presented at the annual meeting of the National Council on Measurement in Education, Philadelphia, PA.

[29] Mazzullo, E., **Bulut, O.**, Tan, B., & Wongvorachan, T. (2024, April). *How can large language models revolutionize learning analytics?* Paper presented at the annual meeting of the National Council on Measurement in Education, Philadelphia, PA.

[30] Wongvorachan, T., **Bulut, O.**, & Gorgun, G. (2024, April). *Evaluating dimensionality in non-cognitive measures: Exploratory vs. hierarchical exploratory graph analysis.* Paper presented at the annual meeting of the National Council on Measurement in Education, Philadelphia, PA.

[31] Clelland, A.C., & **Bulut, O.** (2024, April). *A network psychometrics approach to explore Canadian students' collaborative skills.* Poster presented at the annual meeting of the American Educational Research Association, Philadelphia, PA.

[32] Yildirim-Erbasli, S. N., & **Bulut, O.** (2023, July). *Innovating assessment with conversational agents: A technology-enhanced approach to formative assessments*. Paper presented at the 23rd IEEE International Conference on Advanced Learning Technologies, Orem, UT.

[33] **Bulut, O.**, & Gorgun, G. (2023, June). *Utilizing response time for scoring the TIMSS 2019 problem solving and inquiry tasks*. Paper presented at the IEA International Research Conference (IEA IRC), Dublin, Ireland.

[34] **Bulut, O.**, Gorgun, G., Tan, B., Wongvorachan, T., Yildirim-Erbasli, S., & Clelland, A. (2023, June). *Self-regulated learning through online formative assessments: The effects of assessment frequency and participation on student performance*. Paper presented at the annual meeting of the International Society of the Learning Sciences, Montréal, QC.

[35] Yildirim-Erbasli, S. N., Demmans Epp, C., **Bulut, O.**, & Cui, Y. (2023, June). *Design and evaluation of a conversational agent for formative assessment in higher education*. Paper presented at the annual meeting of the International Society of the Learning Sciences, Montréal, QC.

[36] Rinaldi, C., Keys, K., **Bulut, O.**, Gokiert, R., & Howe, N. (2023, June). *From puzzles to put away: Examining affect and responsiveness in parent-toddler interactions across*

different task contexts. Poster presented at the annual conference of the Jean Piaget Society, Madrid, Spain.

[37] Steele, B. J., Sidney, B., Menard, K., **Bulut, O.**, Lowe, S., Pabayo, R., & Yamamoto, S. (2023, June). *Development and initial validation of the ACCLIMATES surveillance tool: Assessing climate change-related chronic disease vulnerability in Alberta, Canada*. Poster presented at the annual meeting of the Society for Epidemiologic Research, Portland, OR, USA.

[38] **Bulut, O.**, MacIntosh, A., & Walsh, C. (2023, April). *Utilizing NLP techniques for collecting validity evidence for a situational judgement test*. Paper presented at the annual meeting of the National Council on Measurement in Education, Chicago, IL.

[39] **Bulut, O.**, Yildirim-Erbasli, S. N., He, S., Tan, B., & Gao, Y. (2023, April). *Adaptive item recommendation using process data and examinee background characteristics*. In Q. He & O. Bulut (Chairs), Empowering process data for data-informed decision-making in measurement. Paper presented at the annual meeting of the National Council on Measurement in Education, Chicago, IL.

[40] Gorgun, G., **Bulut, O.**, & Wongvorachan, T. (2023, April). *Detecting rapid guessing: In search of the optimal response time threshold*. In E. Ulitzsch & J. Rios (Chairs), Methodological advances in detecting and accounting for noneffortful responding. Paper presented at the annual meeting of the National Council on Measurement in Education, Chicago, IL.

[41] Yildirim-Erbasli, S. N., **Bulut, O.**, & Cui, Y. (2023, April). *Conversation-based assessments: Enhancing students' experiences of formative assessment via human-like interaction*. Paper presented at the annual meeting of the National Council on Measurement in Education, Chicago, IL.

[42] Bulut, H. C., & **Bulut, O.** (2023, April). *Exploring added-value of response times for low-stakes assessments with nested logit models*. Paper presented at the annual meeting of the National Council on Measurement in Education, Chicago, IL.

[43] Gorgun, G., Wongvorachan, T., Tan, B., & **Bulut, O.** (2023, April). *Predicting item difficulty from students' response behaviors*. Paper presented at the annual meeting of the National Council on Measurement in Education, Chicago, IL.

[44] Goodrich, S., & **Bulut, O.** (2023, April). *Dynamic, on-the-fly, and hybrid multistage testing with the bi-factor model*. Paper presented at the annual meeting of the National Council on Measurement in Education, Chicago, IL.

[45] Kilmen, S., **Bulut, O.**, & Shin, J. (2023, April). *Creating short forms of psychological scales: Semantic similarity matters*. Poster presented at the annual meeting of the National Council on Measurement in Education, Chicago, IL.

[46] Yildirim-Erbasli, S. N., Gorgun, G., & **Bulut, O.** (2023, April). *Automatic item paraphrasing to avoid the repetitive use of the same items*. Paper presented at the annual meeting of the National Council on Measurement in Education, Chicago, IL.

[47] Sayin, A., & **Bulut, O.** (2023, April). *Estimating item difficulty: What variables do subject matter experts use?* Paper presented at the annual meeting of the National Council on Measurement in Education, Chicago, IL.

[48] He, S., Wongvorachan, T., **Bulut, O.**, & Lai, K.-W. (2023, March). *Identifying early warning indicators for high school dropouts*. Paper presented at the annual meeting of the National Council on Measurement in Education, Chicago, IL.

[49] Tan, B., **Bulut, O.**, Gorgun, G., & Wongvorachan, T. (2023, March). *Mining textual features of questions to predict item parameters*. Poster presented at the annual meeting of the National Council on Measurement in Education, Chicago, IL.

[50] Wongvorachan, T., He, S., Lai, K. W., & **Bulut, O.** (2023, March). *A comparison of sampling methods for imbalanced classifications in educational datasets*. Poster presented at the annual meeting of the National Council on Measurement in Education, Chicago, IL.

[51] Wongvorachan, T., **Bulut, O.**, Gorgun, G., & Tan, B. (2023, March). *Random search algorithm to identify response time thresholds for rapid guessing*. Paper presented at the annual meeting of the National Council on Measurement in Education, Chicago, IL.

[52] Rinaldi, C., Martinovich, V., Durber, C., & **Bulut, O.** (2023, March). *Mothers' and fathers' parenting and involvement reports from preschool to first grade*. Poster presented at the Society for Research in Child Development Biennial Meeting, Salt Lake City, Utah.

[53] MacIntosh, A., Walsh, C., & **Bulut, O.** (2022, August). *Using natural language processing to understand the multidimensionality of professionalism through a constructed-response situational judgement test*. Paper presented at the Ottawa 2022 conference.

[54] Wongvorachan, T., Poth, C., **Bulut, O.**, & Otto, S. (2022, August). *Leveraging open data sources in mixed methods research*. Paper presented at the biennial global conference of the Mixed Methods International Research Association (MMIRA).

[55] Shin, J., **Bulut, O.**, & Pinto, W. N. (2022, July). *E-learning preparedness: A key consideration to promote fair learning analytics development in higher education*. Paper presented at the Educational Data Mining Conference, Durham, UK.

[56] **Bulut, O.**, MacIntosh, A., & Walsh, C. (2022, July). *Leveraging natural language processing for quality assurance of a situational judgement test*. Paper presented at the annual meeting of the Artificial Intelligence in Education, Durham, UK.

[57] Ulitzsch, E., Yildirim-Erbasli, S. N., Gorgun, G. & **Bulut, O.** (2022, July). *An explanatory mixture IRT model for careless and insufficient effort responding in self-report measures*. Paper presented at the annual meeting of the Psychometric Society, Bologna, Italy.

[58] McCabe, E., Gross, D. P., & **Bulut, O.** (2022, June). *Improving the efficiency of patient-reported outcome measurement: Procedures for developing a computerized adaptive test to assess physical functioning*. Paper presented at the Canadian Association for Health Services and Policy Research Conference.

[59] Hachem, M., Gorgun, G., Chu, M-W., & **Bulut, O.** (2022, April). *Social and emotional variables as predictors of students' perceived cognitive competence and academic performance*. Paper presented at the uLead Summit of Educational Leadership, Banff, AB.

[60] Deforge, K., Seitz, P., **Bulut, O.**, Chu, M-W., Gorgun, G., & Hachem, M. (2022, April). *Giving students a voice: A measure of students' socio-emotional wellbeing to optimize learning for all students*. Paper presented at the uLead Summit of Educational Leadership, Banff, AB.

[61] **Bulut, O.**, & Yildirim-Erbasli, S. N. (2022, April). *Detecting careless responses with the rapid guessing-slow responding method*. Paper presented at the annual meeting of the National Council on Measurement in Education, San Diego, CA.

[62] Bulut, H. C., & **Bulut, O.** (2022, April). *A network psychometrics approach for detecting item wording effects across subgroups*. Paper presented at the annual meeting of the National Council on Measurement in Education, San Diego, CA.

[63] Gorgun, G., & **Bulut, O.** (2022, April). *A smarter CAT: Integrating engagement into the CAT item selection algorithm*. Paper presented at the annual meeting of the National Council on Measurement in Education, San Diego, CA.

[64] Firoozi, T., Abadi, A. N., Demmans Epp, C., **Bulut, O.**, & Barbosa, D. (2022, April). *The effect of word vector representation and linguistic features on the accuracy of automated essay scoring systems using neural networks*. Paper presented at the annual meeting of the National Council on Measurement in Education, San Diego, CA.

[65] Yildirim-Erbasli, S. N., Gorgun, G., Gao, Y., & **Bulut, O.** (2022, April). *Sequential pattern mining to understand time management strategies in online courses*. Poster presented at the annual meeting of the National Council on Measurement in Education, San Diego, CA.

[66] Ulitzsch, E., Yildirim-Erbasli, S. N., Gorgun, G. & **Bulut, O.** (2022, April). *An explanatory mixture IRT model for careless responding in survey data*. Paper presented at the annual meeting of the National Council on Measurement in Education, San Diego, CA.

[67] Tobias, A. D., Cutumisu, M., & **Bulut, O.** (2022, April). *Estimating classification accuracy and decision consistency with classdecision*. Paper presented at the annual meeting of the American Educational Research Association, San Diego, CA.

[68] **Bulut, O.**, Yildirim-Erbasli, S. N., Gorgun, G., Gao, Y., Wongvorachan, T., Lai, K. W., & Shin, J. (2022, March). *Leveraging online formative assessments to enhance predictive learning analytics models*. Paper presented at the International Conference on Learning Analytics and Knowledge (LAK2022).

[69] Walsh, C., MacIntosh, A., **Bulut, O.**, & Shin, J. (2022, March). *What are we measuring?: A topic modeling framework to map professionalism aspects to responses in a situational judgment test*. Poster presented at the International Conference on Learning Analytics and Knowledge (LAK2022).

[70] Nielsen, C., Tilstra, M., **Bulut, O.**, Vargas, A. O., & Yamamoto, S. (2022, April). *Community climate change health tool for populations experiencing higher vulnerability*. Paper presented at the Geodesign Summit.

[71] Yildirim-Erbasli, S. N., & **Bulut, O.** (2022, January). *A conversational agent to measure student learning: Conversation-based assessment*. Poster presented at the Advancing Assessment and Evaluation Conference (AAEC).

[72] Wongvorachan, T., Lai, K.W., **Bulut, O.**, Tsai, Y. S. (2022, January). *Feedback literacy framework in the e-assessment context*. Poster presented at the Advancing Assessment and Evaluation Conference (AAEC).

[73] Gorgun, G. & **Bulut, O.** (2022, January). *Customizing item selection with engagement in computerized-adaptive tests*. Poster presented at the Advancing Assessment and Evaluation Conference (AAEC).

[74] **Bulut, O.**, & Yildirim-Erbasli, S. (2021, November). Real-time assessment and feedback for real-time learning. Paper presented at the Beyond Multiple Choice Conference.

[75] Yildirim-Erbasli, S. N., & **Bulut, O.** (2021, October). *Automatic story generation for reading comprehension*. Poster presented at the annual meeting of the National Council on Measurement in Education (NCME) Special Conference on Classroom Assessment.

[76] Nielsen, C. C., Tilstra, M., **Bulut, O.**, Vargas, A. R. O, & Yamamoto, S. (2021, June). *Spatiotemporal hot spot associations of climate-related health and urban environment*. Paper presented at the annual conference of the Canadian Association of Geographers.

[77] Tilstra, M., Nielsen, C., Tiwari, I., Jones, A., Quemerais, B., Vargas, A. O., **Bulut, O.**, Salma, J., & Yamamoto, S. (2021, June). *Characterizing local climate change vulnerability: Impacts of climatic and air pollution exposures on older adults and immigrants in Edmonton, Alberta*. Paper presented at the annual meeting of the Canadian Society for Epidemiology and Biostatistics.

[78] **Bulut, O.**, Cormier, D. C., & Shin, J. (2021, June). *The end of one-size-fits-all testing: Personalizing test schedules with recommender systems*. Paper presented at the annual meeting of the National Council on Measurement in Education.

[79] Gorgun, G., Yildirim Erbasli, S. N.,& **Bulut, O.** (2021, June). *An application of explanatory IRT to predict factors contributing to rapid guessing*. Paper presented at the annual meeting of the National Council on Measurement in Education.

[80] Yildirim Erbasli, S. N., Gorgun, G., & **Bulut, O.** (2021, June). *Detecting rapid guessing: A new method utilizing response time and accuracy*. Paper presented at the annual meeting of the National Council on Measurement in Education.

[81] Yizhu, G., **Bulut, O.**, & Cui, Y. (2021, June). *Diagnosing adult information problem solving strategy by mining clickstream data*. Paper presented at the annual meeting of the National Council on Measurement in Education.

[82] Yizhu, G., Xiaoming, Z., **Bulut, O.**, & Cui, Y. (2021, June). *Understanding problem-solving styles in technology-rich environments by log data analysis*. Poster presented at the annual meeting of the National Council on Measurement in Education.

[83] Bulut, H. C., Arikan, S., & **Bulut, O.** (2021, June). *Student and item characteristics in online reading comprehension: Polytomous explanatory IRT modeling*. Paper presented at the annual meeting of the National Council on Measurement in Education.

[84] Firoozi, T., Shin, J., **Bulut, O.**, & Gierl, M. J. (2021, June). *The effect of option similarity on the item difficulty of a reading comprehension test: An application of word embedding techniques*. Paper presented at the annual meeting of the National Council on Measurement in Education.

[85] Philippot, C. M., Antoniuk, A., Cormier, D. C., Yildirim-Erbasli, S. N., & **Bulut, O.** (2021, June). *Opening the vault: Using a projective measure to access the financial attitudes of young people*. Poster presented at the annual national conference of the Canadian Psychological Association.

[86] Antoniuk, A., Philippot, C. M., Cormier, D. C., Yildirim-Erbasli, S. N., & **Bulut, O.** (2021, June). *Measuring financial literacy: Investing in positive financial futures*. Poster presented at the annual national conference of the Canadian Psychological Association.

EDITORIAL
SERVICE

- Associate Editor, Intelligence
- Associate Editor, Chinese/English Journal of Educational Measurement and Evaluation
- Section Editor-in-Chief; Contributions to the Measurement of Intelligence, Journal of Intelligence
- Special Issue Editor; Frontiers in Education (2023)
- Special Issue Editor; Journal of Intelligence (2023)
- Special Issue Editor; Journal of Applied Testing Technology (2023)
- Associate Editor; Journal of Measurement and Evaluation in Education and Psychology
- Associate Editor; Chinese/English Journal of Educational Measurement and Evaluation
- Editorial Board Member; International Journal of Assessment Tools in Education
- Editorial Board Member; Canadian Journal of Educational Psychology
- Editorial Board Member; Journal of Intelligence
- Editorial Board Member; Psych
- Consulting Editor; Journal of Educational Psychology

- Ad Hoc Journal Reviewer; Educational and Psychological Measurement
- Ad Hoc Journal Reviewer; Applied Psychological Measurement
- Ad Hoc Journal Reviewer; Journal of Educational Measurement
- Ad Hoc Journal Reviewer; Educational Measurement: Issues and Practice
- Ad Hoc Journal Reviewer; International Journal of Testing

OTHER
PROFESSIONAL
SERVICE

- Peer reviewer for the US Department of Education's Peer Assessment Process   2022 to Now
- Peer reviewer for NRS Assessments at American Institutes for Research   2020 to Now
- External reviewer for the Early Researcher Awards Program in Ontario   2022
- External reviewer for the CANSSI Collaborative Research Team Program   2022
- External reviewer for a Tenure Promotion Package at the University of Tennessee   2022
- External reviewer for a Tenure Promotion Package at the University of Saskatchewan   2020
- Organizer; CanAm Online Symposium Series   2015 to Now
- Member; The Evaluation Advisory Committee for Youth ART Project   2015 to 2018

PROFESSIONAL
MEMBERSHIP

- National Council on Measurement in Education (NCME), Member   2009 to Now
- NCME Publications Committee, Member   2021 to Now
- American Educational Research Association (AERA), Member   2009 to Now
- The International Committee for AERA Division D, Member   2017 to 2020
- Association for Computing Machinery (ACM), Member   2021 to Now
- Society for Learning Analytics Research (SoLAR), Member   2022 to Now