

## OKAN BULUT

---

CONTACT INFORMATION	University of Alberta 6-110 Education Centre North 11210 87 Ave, Edmonton, AB T6G 2G5 CANADA Work Phone: (780) 492-3668 E-mail: bulut@ualberta.ca Website: www.okanbulut.com
EDUCATION	<b>University of Minnesota</b> , Minneapolis, MN, USA  Ph.D., Educational Psychology - Quantitative Methods in Education, June 2013  M.A., Educational Psychology - Quantitative Methods in Education, January 2010  <b>Anadn Menderes University</b> , Aydin, TURKEY  B.A., Elementary Education, June 2006
ACADEMIC POSITIONS	<b>Professor</b> July, 2024 to Now University of Alberta (Edmonton, AB) Faculty of Education Program: Measurement, Evaluation, and Data Science (MEDS)  <b>Associate Professor</b> July, 2018 to June, 2024 University of Alberta (Edmonton, AB) Faculty of Education Program: Measurement, Evaluation, and Data Science (MEDS)  <b>Assistant Professor</b> September, 2014 to June, 2018 University of Alberta (Edmonton, AB) Faculty of Education Program: Measurement, Evaluation, and Data Science (MEDS)
NON-ACADEMIC POSITIONS	<b>Psychometrician</b> May, 2013 to October, 2014 American Institutes for Research (Washington, DC) Assessment Program Project: Statewide Alternate Assessments for Students with Disabilities  <b>Research Fellow</b> 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	<ul style="list-style-type: none"><li>• Instructor and course developer, <i>Analyzing Survey Data with R</i> (Pluralsight)</li><li>• Instructor and course developer, <i>Reshaping Data with R</i> (Pluralsight)</li><li>• Instructor and course developer, <i>EDPY 607 Measurement Theory II</i> (U of Alberta)</li><li>• Instructor and course developer, <i>EDPY 504 Survey Design &amp; Implementation</i> (U of Alberta)</li><li>• Instructor, <i>EDPY 303 Educational Assessment</i> (U of Alberta)</li></ul>

- 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] **Bulut, O.**, Liu, J. X., & Liu, X. (In press). Leveraging AI-powered tools for personalized learning pathways. In S. Papadakis (Ed.), *Virtual tutors and AI-powered instructional tools in K-12 settings*. IGI Global.
- [2] **Bulut, O.**, Tan, B., & Mazzullo (In press). Applications of large language models in automatic item and feedback generation for early elementary education. In S. Papadakis (Ed.), *AI applications in preschool and primary education – Teaching with artificial intelligence*. Springer.
- [3] 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. doi:10.4324/9781003685241-14
- [4] **Bulut, O.**, Liu, J. X., & Demir, H. (2025). Deep reinforcement learning for engagement-aware question selection in adaptive assessment systems. In A. I. Cristea, E. Walker, Y. Lu, O. C. Santos, & S. Isotani (Eds.), *Artificial intelligence in education. Posters and late breaking results, workshops and tutorials, industry and innovation tracks, practitioners, doctoral consortium, blue sky, and wideAIED* (pp. 27-34). AIED 2025. Communications in Computer and Information Science, vol 2592. Springer, Cham. doi:10.1007/978-3-031-99267-4\_4
- [5] 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>

- [6] 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>
- [7] **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
- [8] **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.
- [9] **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
- [10] 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
- [11] **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.
- [12] 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/>.

- [1] **Bulut, O.**, Yildirim-Erbasli, S. N., Ulitzsch, E., & Gorgun, G. (In press). Measuring consumers' financial well-being: Uncovering the causes and consequences of careless and insufficient effort in self-report responses. *Journal of Financial Counseling and Planning*.
- [2] Marmolejo-Ramos, F., **Bulut, O.**, Anunciacao, L., Marques, L., Barthakur, A., Kundrat, J., Recka, K., Karakale, O., Correa, J. C., Pinos-Ullauri, L. A., Ospina, R., & Tejada, J. (2025). From human artefact to machine output: Automating the "art" of psychological measurement. *Journal of Psychology and AI*, 1(1), Article 2561692. doi:10.1080/29974100.2025.2561692
- [3] **Bulut, O.**, & Zheng, Y. (2025). Editorial: Special issue on artificial intelligence and machine learning in educational measurement (Part 3). *Chinese/English Journal of Educational Measurement and Evaluation*, 6(2), Article 1. doi:10.59863/DJYM9770
- [4] Mazzullo, E., Salma, J., Walsh, C. A., Au, A., Sidani, S., Agrawal, S., **Bulut, O.**, & Guruge, S. (2025). Neighborhood social influences on loneliness in older immigrants in two Canadian provinces. *Canadian Journal on Aging*. Advanced online publication. doi:10.1017/S0714980825100068.
- [5] Aydin, B., Kışla, T., Elmas, N. T., & **Bulut, O.** (2025). Automated scoring in the era of artificial intelligence: An empirical study with Turkish essays. *System*, 133, Article 103784. doi:10.1016/j.system.2025.103784.
- [6] Tan, B., & **Bulut, O.** (2025). Within-person variability in response time as a predictor of test performance: Evidence from TIMSS 2019 problem solving and inquiry tasks. *Journal of Intelligence*, 13(7), 82. doi:10.3390/jintelligence13070082.
- [7] He, S., **Bulut, O.**, & Cui, Y. (2025). Preschoolers' initial planning time on problem-solving performance across task difficulties: Insights from intelligent tutoring mobile application log data. *Interactive Learning Environments*. Advance online publication. doi:10.1080/10494820.2025.2523394.
- [8] **Bulut, O.**, Tan, B., Mazzullo, E., & Syed, A. (2025). Benchmarking variants of recursive feature elimination: Insights from predictive tasks in education and healthcare. *Information*, 16(6), 476. doi:10.3390/info16060476.
- [9] Domnich, I., Evenden, M. L., Mori, B. A., & **Bulut, O.** (2025). What's bugging you? A survey of producer perspectives on entomology extension in agriculture in Alberta, Canada. *Journal of Integrated Pest Management*, 16(1), 17. doi:10.1093/jipm/pmaf001.
- [10] Kim, M., Ahmed, N., Akdemir, K., Wong, S., & **Bulut, O.** (2025). Children's perspective-taking and decision-making on forests and land use. *Disciplinary and Interdisciplinary Science Education Research*, 7, Article 10. doi:10.1186/s43031-025-00130-2.
- [11] 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
- [12] **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
- [13] 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

- [14] 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
- [15] Kilmen, S., & **Bulut, O.** (2025). Shortening psychological scales: Semantic similarity matters. *Educational and Psychological Measurement*. Advance online publication. doi:10.1177/00131644251319047
- [16] 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
- [17] **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
- [18] **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.
- [19] **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
- [20] 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
- [21] 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
- [22] 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
- [23] Lu, C., **Bulut, O.**, Epp, Carrie Demmans, & Gierl, M. J. (2024). Impacts of engagement on academic outcomes in technology-enhanced learning. *Distance Education*, 46(2), 318-337. doi:10.1080/01587919.2024.2373297
- [24] **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
- [25] 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
- [26] 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
- [27] 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

- [28] 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
- [29] 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
- [30] 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
- [31] 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
- [32] 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
- [33] 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
- [34] **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
- [35] 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
- [36] **Bulut, O.** (2024). Psycho-educational assessments: Theory and practice. *Journal of Intelligence*, 12(3), 31. doi:10.3390/jintelligence12030031
- [37] 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
- [38] 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
- [39] **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
- [40] 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
- [41] **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
- [42] **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

- [43] **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
- [44] **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
- [45] 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
- [46] 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
- [47] 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/educ.2023.1230623
- [48] 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
- [49] 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
- [50] 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
- [51] 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
- [52] 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
- [53] 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
- [54] 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
- [55] 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
- [56] **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.

- [57] 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.
- [58] Gorgun, G., & **Bulut, O.** (2022). Identifying aberrant responses in intelligent tutoring systems: An application of anomaly detection methods. *Psychological Test and Assessment Modeling*, 64(4), 359-384.
- [59] Wongvorachan, T., **Bulut, O.**, Tsai, Y.-S., & Lindner, M. A. (2022). Improving student feedback literacy in e-assessments: A framework for the higher education context. *Trends in Higher Education*, 1(1), 16-29. doi:10.3390/higheredu1010002
- [60] Salma, J., Tilstra, M., Tiwari, I., Nielsen, C., Whitfield, K., Jones, A., Osornio Vargas, A., **Bulut, O.**, & Yamamoto, S. (2022). Listening to older adults' perspectives on climate change: A focus group study. *International Health Trends and Perspectives*, 2(3), 1-15. doi:10.32920/ihtp.v2i3.1697
- [61] **Bulut, O.**, & Yildirim-Erbasli, S. N. (2022). Automatic story and item generation for reading comprehension assessments with transformers. *International Journal of Assessment Tools in Education*, 9(Special Issue), 72-87. doi:10.21449/ijate.1124382
- [62] Wongvorachan, T., Lai, K. W., **Bulut, O.**, Tsai, Y.-S., & Chen, G. (2022). Artificial intelligence: Transforming the future of feedback in education. *Journal of Applied Testing Technology*, 23(Special Issue 1), 95-116.
- [63] Violato, E., **Bulut, O.**, & King, S. (2022). The initial evaluation of a scale for measuring interprofessional perspective taking. Available at <http://ssrn.com/abstract=4197308>
- [64] Yurekli, H., Yiğit, Ö. E., **Bulut, O.**, Lu, M., & Öz, E. (2022). Exploring factors that affect student well-being during the COVID-19 pandemic: A comparison of data mining approaches. *International Journal of Environmental Research and Public Health*, 19(18), 11267. doi:10.3390/ijerph191811267
- [65] Hachem, M., Gorgun, G., Chu, M.-W., & **Bulut, O.** (2022). Social and emotional variables as predictors of students' perceived cognitive competence and academic performance. *Canadian Journal of School Psychology*, 37(4), 362-384. doi:10.1177/08295735221118474
- [66] Xiao, J., & **Bulut, O.** (2022). Item selection with collaborative filtering in on-the-fly multistage adaptive testing. *Applied Psychological Measurement*, 46(8), 690-704. doi:10.1177/01466216221124089
- [67] **Bulut, O.**, Cormier, D. C., & Yildirim-Erbasli, S. N. (2022). Optimized screening for students at-risk in mathematics: A machine learning approach. *Information*, 13(8), 400. doi:10.3390/info13080400
- [68] **Bulut, O.**, Shin, J., & Cormier, D. C. (2022). Learning analytics and computerized formative assessments: An application of Dijkstra's shortest path algorithm for personalized test scheduling. *Mathematics*, 10(13), 2230. doi:10.3390/math10132230
- [69] Gao, Y., Zhai, X., **Bulut, O.**, Cui, Y., & Sun, X. (2022). Examining humans' problem-solving styles in technology-rich environments using log file data. *Journal of Intelligence*, 10(3), 38. doi:10.3390/jintelligence10030038
- [70] Ulitzsch, E., Yildirim-Erbasli, S. N., Gorgun, G., & **Bulut, O.** (2022). An explanatory mixture IRT model for careless and insufficient effort responding in self-report measures. *British Journal of Mathematical and Statistical Psychology*. Advance online publication. doi:10.1111/bmsp.12272

- [71] Kilmen, S., & **Bulut, O.** (2022). Group differences in the Emotion Regulation During Test-Taking Scale: An explanatory item response modeling approach. *Current Psychology*. Advance online publication. doi:10.1007/s12144-022-03202-y
- [72] Yildirim-Erbasli, S. N., & **Bulut, O.** (2022). Designing predictive models for early prediction of students' test-taking engagement in computerized formative assessments. Advance online publication. *Journal of Applied Testing Technology*.
- [73] Buyukkidik, S., & **Bulut, O.** (2022). Analyzing the effects of test, student, and school predictors on science achievement: An explanatory IRT modeling approach. *Journal of Measurement and Evaluation in Education and Psychology*, 13(1), 40-53. doi:10.21031/epod.1013784
- [74] **Bulut, O.**, & Poth, C. N. (2022). Rapid assessment of communication consistency: Sentiment analysis of public health briefings during the COVID-19 pandemic. *AIMS Public Health*, 9(2), 293-306. doi:10.3934/publichealth.2022020
- [75] Bulut, H. C., & **Bulut, O.** (2022). Item wording effects in self-report measures and reading achievement: Does removing careless respondents help? *Studies in Educational Evaluation*, 72, 101126. doi:10.1016/j.stueduc.2022.101126
- [76] Cormier, D. C., **Bulut, O.**, McGrew, K. S., & Kennedy, K. (2022). Linguistic influences on cognitive test performance: Examinee characteristics are more important than test characteristics. *Journal of Intelligence*, 10(1), 8. doi:10.3390/jintelligence10010008
- [77] Gao, Y., Cui, Y., **Bulut, O.**, Zhai, X., & Chen, F. (2022). Examining adults' web navigation patterns in multi-layered hypertext environments. *Computers in Human Behavior*, 129, 107142. doi:10.1016/j.chb.2021.107142
- [78] **Bulut, O.**, & Kennedy, K. E. (2022). Measuring and understanding public awareness of fetal alcohol spectrum disorders in Alberta, Canada. *Journal of Public Health*, 30, 1693-1700. doi:10.1007/s10389-021-01550-w
- [79] Shin, J., Chen, F., Lu, C., & **Bulut, O.** (2022). Analyzing students' performance in computerized formative assessments to optimize teachers' test administration decisions using deep learning frameworks. *Journal of Computers in Education*, 9, 71-91. doi:10.1007/s40692-021-00196-7
- [80] Butterfuss, R., Kendeou, P., McMaster, K. L., Orcutt, E., & **Bulut, O.** (2022). Question timing, language comprehension, and executive function in inferencing. *Scientific Studies of Reading*, 26(1), 61-78. doi:10.1080/10888438.2021.1901903
- [81] Violato, E., King, S., & **Bulut, O.** (2022). Conformity, obedience, and the better than average effect in health professional students. *Canadian Medical Education Journal*, 13(1), 55-64. doi:10.36834/cmej.71970
- [82] Yildirim-Erbasli, S. N., & **Bulut, O.** (2021). Conversation-based assessments: Real-time assessment and feedback. *eLearn Magazine*, 12, Article 1. doi:10.1145/3495533
- [83] **Bulut, O.** (2021). Beyond multiple-choice with digital assessments. *eLearn Magazine*, 2021(Special Issue), 1-10. doi:10.1145/3472394
- [84] Yildirim-Erbasli, S. N., & **Bulut, O.** (2021). The impact of students' test-taking effort on growth estimates in low-stakes educational assessments. *Educational Research and Evaluation*, 26(7-8), 368-386. doi:10.1080/13803611.2021.1977152
- [85] Daniels, V., Ortiz, S., Sandhu, G., Lai, H., Yoon, M., **Bulut, O.**, & Hillier, T. (2021). Effect of detailed OSCE score reporting on learning and anxiety in medical school. *Journal of Medical Education and Curricular Development*, 8, 1-8. doi:10.1177/2382120521992323

- [86] Gao, Y., Zhai, X., Cui, Y., Xin, T., & **Bulut, O.** (2021). Re-validating a learning progression of buoyancy for middle school students. *Research in Science Education*. Advance online publication. doi:10.1007/s11165-021-10021-x
- [87] **Bulut, O.**, Gorgun, G., & Yildirim-Erbasli, S. N. (2021). Estimating explanatory extensions of dichotomous and polytomous Rasch models: The eirm package in R. *Psych*, 3(3), 308-321. doi:10.3390/psych3030023
- [88] **Bulut, O.**, Cormier, D. C., Aquilina, A. M., & Bulut, H. C. (2021). Age and sex invariance of the Woodcock-Johnson IV Tests of Cognitive Abilities: Evidence from psychometric network modeling. *Journal of Intelligence*, 9(3), 1-16. doi:10.3390/jintelligence9030035
- [89] Shin, J., & **Bulut, O.** (2021). Building an intelligent recommendation system for personalized test scheduling: A reinforcement learning approach. *Behavior Research Methods*. Advance online publication. doi:10.3758/s13428-021-01602-9
- [90] Poth, C., **Bulut, O.**, Aquilina, A., & Otto, S. (2021). Using data mining for rapid complex case study descriptions: Example of public health briefings during the onset of the COVID-19 pandemic. *Journal of Mixed Methods Research*, 15(3), 348-373. doi:10.1177/15586898211013925
- [91] Tilstra, M., Tiwari, I., Niwa, L., Campbell, S., Nielson, C., Jones, A., Osornio Vargas, A., **Bulut, O.**, Quemerais, B., Salma, J., Whitfield, K., & Yamamoto, S. (2021). Risk and resilience: How is the health of older adults and immigrant people living in Canada impacted by climate- and air pollution-related exposures? *International Journal of Environmental Research and Public Health*, 18(20), 10575. doi:10.3390/ijerph182010575
- [92] **Bulut, O.**, & Kim, D. (2021). The use of data imputation when investigating dimensionality in sparse data from computerized adaptive tests. *Journal of Applied Testing Technology*, 22(2), 1-13.
- [93] Bulut, H. C., & **Bulut, O.** (2021). K. Sijtsma and A. L. Van Der Ark: A review of "Measurement Models for Psychological Attributes". *Psychometrika*, 86(2), 514-517. doi:10.1007/s11336-021-09758-1
- [94] Gorgun, G., & **Bulut, O.** (2021). A polytomous scoring approach to handle not-reached items in low-stakes assessments. Advance online publication. *Educational and Psychological Measurement*. doi:10.1177/0013164421991211
- [95] Georgiou, G. K., **Bulut, O.**, Dunn, K., Naglieri, J., & Das, J.P. (2021). Examining the relation between PASS cognitive processes and superior reading and mathematics performance. *Psychology in the Schools*, 58, 252–267. doi:10.1002/pits.22442
- [96] **Bulut, O.** (2021). Test review of the Young Children's Achievement Test-Second Edition. In J. F. Carlson, K. F. Geisinger, & J. L. Jonson (Eds.), *The twenty-first mental measurements yearbook* (pp. 873-878). Lincoln, NE: Buros Center for Testing.
- [97] El Hassar, B., Poth, C., Gokiart, R., & **Bulut, O.** (2021). Toward an evidence-based approach to building evaluation capacity. *The Canadian Journal of Program Evaluation*, 36(1), 82-94. doi:10.3138/cjpe.69191
- [98] **Bulut, O.**, Cormier, D. C., & Shin, J. (2020). An intelligent recommender system for personalized test administration scheduling with computerized formative assessments. *Frontiers in Education*, 5, 1-11. doi:10.3389/educ.2020.572612
- [99] **Bulut, O.**, Cutumisu, M., Sing, D., & Aquilina, A. M. (2020). Guidelines for generating effective feedback from e-assessments. *Hacettepe University Journal of Education*, 35(Special Issue), 60-72. doi:10.16986/HUJE.2020063705.

- [100] **Bulut, O.**, Xiao, J., Rodriguez, M. C., & Gorgun, G. (2020). An empirical investigation of factors contributing to item nonresponse in self-reported bullying instruments. *Journal of School Violence*. Advance online publication. doi:10.1080/15388220.2020.1770603
- [101] **Bulut, O.**, & Desjardins, C. D. (2020). Profile analysis of multivariate data: A brief introduction to the profileR package. doi:10.31234/osf.io/sgy8m
- [102] Brown, G. T. L., Alqassab, M., **Bulut, O.**, & Xiao, J. (2020). Item impact as the source of differential item functioning in small samples: Evaluation with MIMIC-PA and MIMIC-interaction approaches. *Psychological Test and Assessment Modeling*, 65(4), 429-448.
- [103] Violato, E., King, S., & **Bulut, O.** (2020). A multi-method exploratory study of health professional students' experiences with compliance behaviours. *BMC Medical Education*, 20(359), 1-10. doi:10.21203/rs.3.rs-37019/v3
- [104] Flanagan, A., Cormier, D. C., & **Bulut, O.** (2020). Teachers' expectations vary: Social implications for students of different ethnic groups. *Social Psychology of Education*, 23(6), 1429-1448. doi:10.1007/s11218-020-09590-y
- [105] St-Amand, J., Bowen, F., **Bulut, O.**, Cormier, D. C., Girard, S., & Janosz, M. (2020). Le sentiment d'appartenance à l'école : Validation d'un modèle théorique prédisant l'engagement et le rendement en mathématiques d'élèves du secondaire. *Teachers & Teaching: International Journal in Education*, 28(2), 89-105. doi:10.18162/fp.2020.530.
- [106] Desjardins, C. D., & **Bulut, O.** (2020). profileR: An R package for profile analysis. *The Journal of Open Source Software*, 5(47), 1941. doi:10.21105/joss.01941
- [107] Kendeou, P., McMaster, K., Butterfuss, R., Kim, J., Slater, S., & **Bulut, O.** (2020). Development and validation of the Minnesota Inference Assessment. *Assessment for Effective Intervention*. Advance online publication. doi:10.1177/1534508420937781
- [108] Xiao, J., & **Bulut, O.** (2020). Evaluating the performances of missing data handling methods in ability estimation from sparse data. *Educational and Psychological Measurement*. Advance online publication. doi:10.1177/0013164420911136
- [109] Liou, P.-Y., & **Bulut, O.** (2020). The effects of item format and cognitive domain on students' science performance in TIMSS 2011. *Research in Science Education*, 50(1), 99-121. doi:10.1007/s11165-017-9682-7
- [110] Shin, J., **Bulut, O.**, & Gierl, M. J. (2020). The effect of the most attractive distractor location on multiple-choice item difficulty. *Journal of Experimental Education*, 88(4), 643-659. doi:10.1080/00220973.2019.1629577.
- [111] Shin, J., **Bulut, O.**, & Gierl, M. J. (2020). Development practices of trusted AI systems among Canadian data scientists. *International Review for Information Ethics*, 28, 1-10.
- [112] **Bulut, O.**, & Yavuz, H. C. (2019). Educational data mining: A tutorial for the rattle package in R. *International Journal of Assessment Tools in Education*, 6(5), 20-36. doi:10.21449/ijate.627361
- [113] **Bulut, O.**, Cutumisu, M., Aquilina, A. M., & Singh, D. (2019). Effects of digital score reporting and feedback on students' learning in higher education. *Frontiers in Education*, 4(65), 1-16. doi:10.3389/feduc.2019.00065
- [114] Daniels, L. M., & **Bulut, O.** (2019). Students' perceived usefulness of computerized percentage-only vs. descriptive score reports: Associations with motivation and grades. *Journal of Computer Assisted Learning*, 36(2), 199-208. doi:10.1111/jcal.12398

- [115] Chen, F., Yang, H., **Bulut, O.**, Cui, Y., & Xin, T. (2019). Examining the relation of personality factors to substance use disorder by explanatory item response modeling of DSM-5 symptoms. *PLoS ONE*, *14*(6), 1-17. doi:10.1371/journal.pone.0217630
- [116] Stanke, L., & **Bulut, O.** (2019). Explanatory item response models for polytomous item responses. *International Journal of Assessment Tools in Education*, *6*(2), 259–278. doi:10.21449/ijate.515085
- [117] Celik, H., & **Bulut, O.** (2019). Examining Turkish adults' recalled experiences of their father's presence. *Journal of Family Issues*, *40*(9), 1224–1251. doi:10.1177/0192513X19835879
- [118] Cormier, D. C., Van Norman, E. R., Cheong, C., Kennedy, K. E., **Bulut, O.**, & Mrazik, M. (2019). Mastering standardized cognitive assessment scoring procedures: How much is enough? *Canadian Journal of School Psychology*, *34*(3), 215-233. doi:10.1177/0829573518765010
- [119] **Bulut, O.**, & Cormier, D. C. (2018). Validity evidence for progress monitoring with Star Reading: Slope estimates, administration frequency, and number of data points. *Frontiers in Education*, *3*(68), 1-12. doi:10.3389/feduc.2018.00068
- [120] **Bulut, O.**, Lei, M., & Guo, Q. (2018). Item and testlet position effects in computer-based alternate assessments for students with disabilities. *International Journal of Research & Method in Education*, *42*(1), 169-183. doi:10.1080/1743727X.2016.1262341
- [121] **Bulut, O.**, & Cutumisu, M. (2018). When technology does not add up: ICT use negatively predicts mathematics and science achievement for Finnish and Turkish students in PISA 2012. *Journal of Educational Multimedia and Hypermedia*, *27*(1), 25-42.
- [122] Kan, A., **Bulut, O.**, & Cormier, D. C. (2018). The impact of item stem format on the dimensional structure of mathematics assessments. *Educational Assessment*, *24*(1), 13-32. doi:10.1080/10627197.2018.1545569
- [123] Arce-Ferrer, A. & **Bulut, O.** (2018). Effects of data collection designs in the comparison of computer-based and paper-based tests. *Journal of Experimental Education*, *87*(4), 661-679. doi:10.1080/00220973.2018.1507986
- [124] Korukcu, O., **Bulut, O.**, & Kukulcu, K. (2018). From experiences to expectations: A quantitative study on the fear of childbirth among multigravida women. *Archives of Psychiatric Nursing*. Advance online publication. doi:10.1016/j.apnu.2018.11.002
- [125] Liu, R., Huggins-Manley, & **Bulut, O.** (2018). Retrofitting diagnostic classification models to responses from IRT-based assessment forms. *Educational and Psychological Measurement*, *78*(3), 357-383. doi:10.1177/0013164416685599
- [126] McCabe, E., Gross, D. P., & **Bulut, O.**, (2018). Procedures to develop a computerized adaptive test to assess patient-reported physical functioning. *Quality of Life Research*, *27*(9), 2393-2402. doi:10.1007/s11136-018-1898-0
- [127] Cormier, D. C., **Bulut, O.**, Singh, D., Kennedy, K. E., Wang, K., Heudes, A., & Lewka, A. J. (2018). A systematic examination of the linguistic demand of cognitive test directions administered to school-Age populations. *Journal of Psychoeducational Assessment*, *36*(4), 337-353. doi:10.1177/0734282916678336
- [128] **Bulut, O.**, Davison, M. L., & Rodriguez, M. C. (2017). Estimating between-person and within-person subscore reliability with profile analysis. *Multivariate Behavioral Research*, *52*(1), 86-104. doi:10.1080/00273171.2016.1253452
- [129] **Bulut, O.**, & Suh, Y. (2017). Detecting DIF in multidimensional assessments with the MIMIC model, the IRT likelihood ratio test, and logistic regression. *Frontiers in Education*, *2*(51), 1-14. doi:10.3389/feduc.2017.00051

- [130] **Bulut, O.**, & Sunbul, O. (2017). Monte Carlo simulation studies in item response theory with the R programming language. *Journal of Measurement and Evaluation in Education and Psychology*, 8(3), 266-287. doi:10.21031/epod.305821
- [131] **Bulut, O.**, Guo, Q. & Gierl, M. J. (2017). A structural equation modeling approach for examining position effects in large-scale assessments. *Large-Scale Assessments in Education*, 5(8), 1-20. doi:10.1186/s40536-017-0042-x
- [132] 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. *Journal of Educational Multimedia and Hypermedia*, 26(4), 325-342.
- [133] Cormier, D. C., **Bulut, O.**, McGrew, K. S., & Singh, D. (2017). Exploring the effects of Cattell-Horn-Carroll (CHC) cognitive abilities underlying mathematics achievement. *Applied Cognitive Psychology*, 31(5), 530-538 doi:10.1002/acp.3350
- [134] Gierl, M. J., **Bulut, O.**, Guo, Q., & Zhang, X. (2017). Developing, analyzing, and using distractors for multiple-choice testing: A comprehensive review. *Review of Educational Research*, 87,(6), 1082-1116. doi:10.3102/0034654317726529
- [135] Lee, S., **Bulut, O.**, & Suh, Y. (2017). Multidimensional extension of Multiple Indicators Multiple Causes models to detect DIF. *Educational and Psychological Measurement*, 77(4), 545-569. doi:10.1177/0013164416651116
- [136] Arce-Ferrer, A. J., & **Bulut, O.** (2017). Separate and concurrent anchor purification-scale transformation approaches in the 3PL IRT equating. *International Journal of Testing*, 17(1), 1-22. doi:10.1080/15305058.2016.1227825
- [137] Bellibas, M. S., **Bulut, O.**, & Gedikli, S. (2017). Investigating professional learning communities in Turkish schools: The effects of contextual factors. *Professional Development in Education*, 43(3), 353-374. doi:10.1080/19415257.2016.1182937
- [138] Yaylaci, T., Cicchetti, D., Rogosch, F. A., **Bulut, O.**, & Hetzel, S. R. (2017). The interactive effects of child maltreatment and the FK506 binding protein 5 gene (FKBP5) on dissociative symptoms in adolescence. *Development and Psychopathology*, 29(3), 1105-1117. doi:10.1080/15305058.2016.1227825
- [139] Cormier, D. C., McGrew, K. S., **Bulut, O.**, & Funamoto, A. (2016). Revisiting the relations between the WJ IV measures of Cattell-Horn-Carroll (CHC) cognitive abilities and reading achievement during the school-age years. *Journal of Psychoeducational Assessment*, 35(8), 731-754. doi:10.1177/0734282916659208
- [140] Cormier, D. C., **Bulut, O.**, McGrew, K. S., & Frison, J. (2016). The role of Cattell-Horn-Carroll (CHC) cognitive abilities in predicting writing achievement during the school age years. *Psychology in the Schools*, 53(8), 787-803. doi:10.1002/pits.21945
- [141] Van Boekel, M., **Bulut, O.**, Stanke, L., Zamora, J. P. R., Jang, Y., Kang, Y., & Nickodem, K. (2016). Effects of participation in school sports on academic and social functioning. *Journal of Applied Developmental Psychology*, 46, 31-40. doi:10.1016/j.appdev.2016.05.002
- [142] Latifi, S. F., **Bulut, O.**, Gierl, M. J., Christie, T., & Jeeva, S. (2016). Differential performance on national exams: Evaluating item and bundle functioning methods using English, mathematics, and science assessments. *Open*, 6(2), 1-14. doi:10.1177/2158244016653791
- [143] Korukcu, O., **Bulut, O.**, & Kukulcu, K. (2016) Psychometric evaluation of the Wijma Delivery Expectancy/Experience Questionnaire version B. *Health Care for Women International*, 37(5), 550-567. doi:10.1080/07399332.2014.943838

- [144] Shojaee, M., **Bulut, O.**, & Shahidi, M. (2016). Examining psychometric properties of the Kutcher Adolescent Depression Scale (KADS-11) using multidimensional item response theory. *International Journal of Current Research*, 8(3), 27120-27131.
- [145] Bellibas, M. S., **Bulut, O.**, Hallinger, P., & Wang, W. C. (2016). Validating an instructional leadership profile of Turkish primary school principals with the PIMRS. *International Journal of Educational Research*, 75, 115-133.
- [146] **Bulut, O.** (2015). Applying item response theory models to Entrance Examination for Graduate Studies: Practical issues and insights. *Journal of Measurement and Evaluation in Education and Psychology*, 6(2), 313-330.
- [147] **Bulut, O.** (2015). An empirical analysis of gender-based DIF due to test booklet effect. *European Journal of Research on Education*, 3(1),7-16.
- [148] **Bulut, O.**, Palma, J., Rodriguez, M. C., & Stanke, L. (2015). Evaluating measurement invariance in the measurement of developmental assets in Latino English language groups across developmental stages. *Sage Open*, 5(2), 1-18.
- [149] Kan, A., & **Bulut, O.** (2015). Examining the language factor in mathematics assessments. *Journal of Education and Human Development*, 4(1), 133-146.
- [150] Kan, A., & **Bulut, O.** (2014). Crossed random-effect modeling: Examining the effects of teacher experience and rubric use in performance assessments. *Eurasian Journal of Educational Research*, 57, 1-28.
- [151] Kan, A., & **Bulut, O.** (2014). Examining the relationship between gender DIF and language complexity in mathematics assessments. *International Journal of Testing*, 14(3), 245-264.
- [152] Korukcu, O., **Bulut, O.**, Bayram, Z., Tuzcu, A., & Turkmen, H. O. (2014). An adaptation of Leymann Inventory of Psychological Terror to health sciences programs in Turkey. *Anatolian Journal of Psychiatry*, 15(4), 335-343.
- [153] Gumus, S., **Bulut, O.**, & Bellibas, M. S. (2013). The relationship between principal leadership and teacher collaboration in Turkish primary schools: A multilevel analysis. *Education Research and Perspectives*, 40, 1-29.
- [154] **Bulut, O.**, & Kan, A. (2012). Application of computerized adaptive testing to Entrance Examination for Graduate Studies in Turkey. *Eurasian Journal of Educational Research*, 49, 61-80.
- [155] **Bulut, O.**, Delen, E., & Kaya, F. (2012). An SEM model based on PISA 2009 in Turkey: How does the use of technology and self-regulation activities predict reading scores? *Procedia - Social and Behavioral Sciences*, 64, 564-573.
- [156] Kaya, F., Delen, E., & **Bulut, O.** (2012). Test review: Shipley-2 manual. *Journal of Psychoeducational Assessment*, 30(6), 593-597.
- [157] Delen, E., & **Bulut, O.** (2011). The relationship between students' exposure to technology and their achievement in science and math. *TOJET: The Turkish Online Journal of Educational Technology*, 10(3), 311-317.

CONFERENCE  
PUBLICATIONS

- [1] Kim, J.-S., Wu, H., Sweet, T. M., Molenaar, D., Junker, B. W., Moustaki, I., Harring, J. R., **Bulut, O.**, Tong, X. (C.), Wallin, G., & Di Plinio, S. (Eds.). (2025). *Proceedings of the International Meeting of the Psychometric Society: The 89th Annual Meeting*, Prague, Czech Republic, 2024. doi:10.64028/imps2024.

- [2] Mazzullo, E., & **Bulut, O.** (2025). Automated feedback generation for open-ended questions: Insights from fine-tuned LLMs. In S. Li, Z. Cui, J. Lu, D. Harris, & S. Jing (Eds.), *Proceedings of Large Foundation Models for Educational Assessment, PMLR*, 264, 103-120. <https://proceedings.mlr.press/v264/mazzullo25a.html>
- [3] **Bulut, O.**, Gorgun, G., & Tan, B. (2024). Item difficulty and response time prediction with large language models: An empirical analysis of USMLE items. In E. Kochmar, M. Bexte, J. Burstein, A. Horbach, R. Laarmann-Quante, A. Tack, V. Yaneva, & Z. Yuan (Eds.), *Proceedings of the 19th Workshop on Innovative Use of NLP for Building Educational Applications* (pp. 522–527), Mexico City, Mexico. Association for Computational Linguistics. doi:10.7939/r3-0xjn-2446
- [4] Gorgun, G., & **Bulut, O.** (2024). Current evaluation methods are a bottleneck in automatic question generation. In *Proceedings of Machine Learning Research* (pp. 1-8), Vancouver, BC, Canada.
- [5] Madland, C., Irvine, V., DeLuca, C., & **Bulut, O.** (2024). Evolving our understanding of technology-integrated assessment: A review of the literature and development of a new framework. In *OTESSA Conference Proceedings*, 4(1), 1-10. doi:10.18357/otessac.2024.4.1.393
- [6] Connolly, D., Morris, H., **Bulut, O.**, Cottrell-McDermott, C., Hyshka, E., Issa, T., Piggott, B., Taylor, M., & Salvalaggio, G. (2024). Co-occurring issues facing patients who use unregulated drugs: Insights from a survey in Edmonton, Canada. In *The Annals of Family Medicine*, 22 (Supplement 1), 7069. doi:10.1370/afm.22.s1.7069
- [7] **Bulut, O.**, Gorgun, G., Tan, B., Wongvorachan, T., Yildirim-Erbasli, S. N., & Clelland, A. (2023). Self-regulated learning through online formative assessments: The effects of assessment frequency and participation on student performance. In P. Blikstein, J. Van Aalst, R. Kizito, & K. Brennan (Eds.), *Proceedings of the 17th International Conference of the Learning Sciences* (pp. 1406-1409), Montreal, QC, Canada: International Society of the Learning Sciences.
- [8] 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.
- [9] 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
- [10] **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\_
- [11] 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

- [12] 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
- [13] 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).
- [14] 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
- [15] **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).
- [16] 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).
- [17] 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] Gorgun, G., **Bulut, O.**, & Lindner, M. A. (2025, August). *Response behavior is a good proxy for difficulty estimation in adaptive learning environments*. Paper presented at the European Association for Research on Learning and Instruction (EARLI) Conference, Graz, Austria.
- [2] **Bulut, O.**, Liu, J. X., & Demir, H. (2025, July). *Deep reinforcement learning for engagement-aware question selection in adaptive assessment systems*. Poster presented at the International Conference on Artificial Intelligence in Education, Palermo, Italy.
- [3] Ulitzsch, E., & **Bulut, O.** (2025, June). *Detecting careless responding in the PIRLS 2021 student questionnaire: An IRT mixture modeling approach*. Paper presented at the IEA International Research Conference (IEA IRC), Rome, Italy.
- [4] 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 presented at the International Council of Nursing Congress, Helsinki, Finland.
- [5] 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 presented at the annual general meeting and national convention of the Canadian Psychological Association, St. John's, NL.
- [6] 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.
- [7] 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.
- [8] 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.
- [9] **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.
- [10] 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.

- [11] 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.
- [12] 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.
- [13] 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.
- [14] 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.
- [15] 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.
- [16] 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.
- [17] Connolly, 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.
- [18] 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.
- [19] 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.
- [20] **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.
- [21] **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.

- [22] **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.
- [23] 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.
- [24] 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.
- [25] 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.
- [26] 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.
- [27] 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.
- [28] 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.
- [29] 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.
- [30] 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.
- [31] 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.
- [32] **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.
- [33] **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.

- [34] 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.
- [35] 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.
- [36] Steele, B. J., Sidney, B., Menard, K., **Bulut, O.**, Lowe, S., Pabayoy, 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.
- [37] **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.
- [38] **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.
- [39] 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.
- [40] 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.
- [41] 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.
- [42] 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.
- [43] 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.
- [44] 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.
- [45] 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.

- [46] 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.
- [47] 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.
- [48] 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.
- [49] 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.
- [50] 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.
- [51] 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.
- [52] 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.
- [53] 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).
- [54] 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.
- [55] **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.
- [56] 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.
- [57] 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.
- [58] 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.
- [59] 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.

- [60] **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.
- [61] 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.
- [62] 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.
- [63] 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.
- [64] 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.
- [65] 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.
- [66] 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.
- [67] **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).
- [68] 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).
- [69] 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.
- [70] 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).
- [71] 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).
- [72] 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).
- [73] **Bulut, O.**, & Yildirim-Erbasli, S. (2021, November). *Real-time assessment and feedback for real-time learning*. Paper presented at the Beyond Multiple Choice Conference.

- [74] 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.
- [75] 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.
- [76] 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.
- [77] **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.
- [78] 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.
- [79] 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.
- [80] 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.
- [81] 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.
- [82] 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.
- [83] 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.
- [84] 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.
- [85] 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