

NICOLE PANORKOU

CURRICULUM VITAE

Associate Professor
Mathematics Education
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Montclair State University
Department of Mathematics (CCIS 425F)
1 Normal Avenue,
Montclair, NJ07043

EDUCATION

- June 2011 Ph.D. in Mathematics Education, UCL Institute of Education (UK)
Dissertation: *A phenomenographic study of students' experiences of dimension*
Supervisor (advisor): Dr. Dave Pratt
Examiners (committee): Drs. Richard Noss and John Mason (University of Oxford)
- June 2006 MSc in Mathematics Education, University of Warwick (UK)
Thesis: *Using knowledge of 2-dimensional and 3-dimensional geometry*
- June 2005 BSc in Educational Sciences - with specialization in Mathematics Education and ICT, University of Cyprus (Cyprus)

ACADEMIC APPOINTMENTS

- Sept 2018 – Present Associate Professor of Mathematics Education, Department of Mathematics, CSAM, Montclair State University
- Sept 2013 – Aug 2018 Assistant Professor of Mathematics Education, Department of Mathematics, CSAM, Montclair State University
- Sept 2011 – Aug 2013 Post-doctoral researcher, Friday Institute of Educational Innovation, North Carolina State University

GRANT ACTIVITY

- Sept 2023 – Aug 2026 Principal Investigator
Designing an Equitable Approach to Multiplicative Reasoning through Dynamic Measurement for Area (DYME-A)
Funding: NSF DRL #2321234, \$350,000.

Sept 2017 – Aug 2023	<p>Co-Principal Investigator Assimilating Computational and Mathematical thinking into Earth and Environmental Science (ACMES) Other Co-PIs: Michelle Zhu, Pankaj Lal, Bharath Samanthula <i>Funding:</i> NSF DRL #1742125, \$1,147,085</p>
Sept 2017 – Feb 2020	<p>Principal Investigator When counting cubes is not enough: Exploring volume measurement dynamically (DYME-V). <i>Funding:</i> National Academy of Education & Spencer Foundation, \$70,000</p>
May 2015 - Aug 2017	<p>Principal Investigator The DYME project: Developing students' thinking of Dynamic Measurement (DYME) <i>Funding:</i> Spencer Foundation \$49,443.80</p>
Sept 2015 – May 2019	<p>Consultant Newark Montclair Urban Teacher Residency Program <i>Funding:</i> Teacher Quality Partnership grant, U.S. Department of Education \$6.2 million</p>
May 2015 – July 2016	<p>Collaborator/Consultant EpiSTEMic project Collaborators: Sumi Hagiwara, Steven Greenstein</p>
Sept 2014 – Dec 2015	<p>Collaborator/Consultant Integrated System of Personalized Learning (ISPL) project <i>Funding:</i> Pearson Learning \$28,000</p>
Jan 2012 – Aug 2013	<p>Post-doctoral Fellow Building Learning Progress Profiles (LPP) Synchronized for Rational Number Reasoning with Socially Networked Wireless Devices (Wireless LPP Sync) PI: Jere Confrey, North Carolina State University <i>Funding:</i> Qualcomm, \$695,000</p>
Sept 2011 – Aug 2013	<p>Post-doctoral Fellow Completing, Validating, and Linking Learning Trajectories for K-8 Rational Number Reasoning Tied to the Common Core Standards PIs: Jere Confrey & Alan Maloney, North Carolina State University <i>Funding:</i> NSF #1118858, \$2,532,938</p>
Sept 2011 – Aug 2012	<p>Principal Investigator Graphs 'N Glyphs project: Facilitating the teaching and learning of geometric transformations through animation North Carolina State University <i>Funding:</i> Fulbright Commission, US Department of State \$13,000.</p>

AWARDS – HONORS

- National Academy of Education/Spencer Postdoctoral Fellowship, 2017
- Summer Grant Proposal Development Award, Montclair State University, 2017
- Career Development Internal Award, Montclair State University, 2015
- STaR (**S**ervice, **T**eaching, and **R**esearch) Fellow awarded by The Association of Mathematics Teacher Educators (<http://starfellows.com/>), 2014
- Doctoral Faculty status awarded by Montclair State University, 2014-2018, 2018-2022, 2022-2026
- Fulbright Commission scholarship – Visiting scholar, 2011-2012
- Associate of the Higher Education Academy status awarded by the Higher Education Academy in the United Kingdom, 2011
- Erasmus award as an exchange scholar at the University of Joensuu in Finland – funded by the European Union, 2002

RESEARCH SUPERVISION AND MENTORING

I have supervised and mentored the following graduate students:

Doctoral dissertation committee chair, Montclair State University

- Amanda Provost (2023 – Present)
- Su San Lim (2022 – Present)
- Toni York (2020 – Present)
- Adam Anderson (2020 – Present)
- Frank Forte (2020 – Present)
- Erell Feb Germia (Graduated 2022)
- Debasmita Basu (Graduated 2019)
- Madhavi Vishnubhotla (2016 – 2018)

Doctoral dissertation committee member, Montclair State University

- Malack Ameyna (2020 – Present)
- Abiodun Banner (2019 – Present)
- Matthew Dalzell (2020 – 2021)
- Justin Seventko (2015 – 2017)
- Sara Mastellone (2014 – 2017)

Doctoral dissertation committee external member, Texas State University

- Elizabeth Roan (2021 – Present)

Masters thesis committee chair, Montclair State University

- Taheeda Street-Conaway (graduated 2019)

Graduate Research Assistant (GRA) Supervision, Montclair State University

- Geena Taite GRA for DYME-A project (2023 -)
- Henry Vas Nunes GRA for STEM+C & DYME-A projects (2023 -)
- Amanda Provost GRA for STEM+C & DYME-A projects (2021 -)
- Toni York GRA for STEM+C project (2018 - 2023)
- Su San Lim GRA for STEM+C project (2019 - 2022)
- Erell Feb Germia GRA for DYME-V and STEM+C projects (2016 - 2022)
- Mustafa Mohamed GRA for STEM+C project (2020)
- Youngjun Kim GRA for DYME project (2019 - 2021)
- Taheeda Street-Conaway GRA for STEM+C project (2018-2019)
- Debasmita Basu GRA for DYME-V and STEM+C projects (2015 -2019)
- Madhavi Vishnubhotla GRA for DYME project (2015 - 2018)
- Gurkan Kose GRA for DYME project (2014 - 2017)
- Justyna Rybka GRA for DYME project (2014 - 2015)
- Douglas Platt GRA for G 'N G and DYME projects (2013 - 2016)
- Justin Seventko GRA for epiSTEMic project (2015 – 2016)
- Karmen Yu GRA for epiSTEMic project (2014 - 2016)
- Trina Marcella Wooten GRA for TRIG project (2014 - 2015)

Teaching assistant supervision, Montclair State University

- Sherry Yang Graduate Teaching Assistant for MTHM 201
- Erell Germia Graduate Teaching Assistant for MTHM 201
- Youngjun Kim Graduate Teaching Assistant for MTHM 579 and 577

Research assistant supervision at North Carolina State University (2011 – 2013)

- Jennifer Nickell GRA for TurnOnCCMath project
- Tamar Avineri GRA for TurnOnCCMath & MOOC-ed projects
- Andrew Corley GRA for DELTA I and II projects
- Nadia Monroe GRA for DELTA I project
- Zuhal Yilmaz GRA for DELTA I project

TEACHING EXPERIENCE (ACADEMIC)

Doctoral Courses at Montclair State University

- *Mathematical Modeling in the Sciences (MATH 742)*
- *Design Research (MATH 744)*
- *Technological tools for Education in Mathematics (MATH 740)*
- *Learning Trajectories in Mathematics Education (MATH 744)*
- *Dissertation Proposal Seminar (MATH 830)*
- *The 3Rs: Reading, Writing, and Reflection (MATH 830)*
- *Geometric and Spatial Thinking and Learning (MATH 813)*

Graduate Courses (MA/MAT/MS programs) at Montclair State University

- *Math Materials for Teachers of Mathematics (MATH 573)*
- *Applied Mathematics for the Middle and High School (MTHM 579)*
- *Educational Technology for School Mathematics (MATH 513)*
- *Contemporary Teaching of Mathematics (MATH 572)*
- *Mathematics Education in the Elementary School (PreK-3 focus) (MATH 577.71)*
- *Mathematics Education in the Elementary School (MATH 577)*

Undergraduate Courses at Montclair State University

- *Mathematics Research I (MATH 497)*
- *Mathematics Research II (MATH 498)*
- *Mathematics in Elementary Schools P-6 (MTHM 201)*
- *Mathematics in Elementary Schools P-6 II (MTHM 302)*

Teaching at North Carolina State University

- *Rational Numbers and Operations: K-5 Learning Trajectories (Instructor and Designer, Professional development course for pre- and in-service teachers, teacher educators and administrators URL: www.mooc-ed.org)*
- *Interpreting the Common Core Math Standards using Learning Trajectories (Instructor, course for pre-service teachers)*
- *Rational Numbers and Operations: K-5 Learning Trajectories (Instructor, Elementary Mathematics Add-on License Course ELM 556)*

Teaching at the UCL Institute of Education

- *Designing Mathematical Learning and Teaching with Digital Technologies (Teaching Assistant, MA course taught by profs. Dave Pratt and Richard Noss)*
- *From methods to methodology: Preparing to write (Instructor, Doctoral course designed by prof. Chris Husbands)*
- *Research Design (Instructor, Doctoral course designed by prof. Chris Husbands)*

K-12 TEACHING EXPERIENCE

Sept 2006 – Aug 2011 K-6 Elementary school teacher (full-time).
Cyprus Educational Mission in London, U.K.

PEER-REVIEWED PUBLICATIONS IN JOURNALS

Taite, G., Leonard, H., Provost, A., & **Panorkou, N.** (*in press*). Modeling with Math and Science: Chernobyl Disaster. *Mathematics Teacher: Learning and Teaching PreK-12 MTLT*.

Provost, A. & **Panorkou, N.** (*in press*). Exploring Lunar Phases with the Moon Pie Simulation. *Mathematics Teacher: Learning and Teaching PreK-12 MTLT*.

Panorkou, N., York, A. & Germia, E. (2023). Using Debugging As A Platform For Transdisciplinary Learning, Cognition and Instruction. <https://doi.org/10.1080/07370008.2023.2270094>

- Panorkou, N.** & Germia, E. (2023). Young students' forms of reasoning about multiple quantities. *For the Learning of Mathematics*, 43(1), 19-23.
- Panorkou, N.**, York, T., & Germia, E. (2023). Examining the “messiness” of transitions between related artifacts. *Digital Experiences in Mathematics Education*. 9, 131-162.
- Prasad, A., Lal, P., Wolde, B., Zhu, M., Samanthula, B.K., **Panorkou, N.** (2022), Exploring Impacts of a STEM Day Camp on Adolescent Desire to Pursue STEM in College, *Journal of STEM Outreach*, 21(1), 87-101.
- Panorkou, N.** (2021). Exploring Students' Dynamic Measurement Reasoning About Right Prisms and Cylinders, *Cognition and Instruction*, 39(4), 477-511.
- Panorkou, N.** & Germia, E. (2021). Integrating math and science content through covariational reasoning: The case of gravity. *Mathematical Thinking and Learning*, 23(4), 318-343.
- Singh, JP., Lal, P., Prasad, A., Bernabas, W., Iranah, P., Zhu, M., Samanthula, BK., **Panorkou, N.** (2021) Student attitude towards environmental issues following extracurricular science, technology, engineering, and mathematics (STEM) activities: Evidence from a student survey, *Middle States Geographer*, 54, 57-66.
- Prasad, A., Lal, P., Wolde, B., Smith, M., Zhu, M., Samanthula, B.K., **Panorkou, N.** (2021), Exploring the human-nature connection and the perceived risk of nature in children, *Applied Environmental Education & Communication*, 21(1), 87-101.
- Panorkou, N.** (2020). Dynamic Measurement Reasoning for Area and Volume. *For the Learning of Mathematics*, 40(3), pp. 9-13.
- Panorkou, N.** (2020). Reasoning dynamically about the area of a rectangle: The case of Lora and Isaac. *Digital Experiences in Mathematics Education*, 6(3), 257-292.
- Germia, E. & **Panorkou, N.** (2020). Using Scratch programming to explore coordinates. *Mathematics Teacher: Learning and Teaching PreK-12 MTLT*, 113(4), pp. 293-300.
- Basu, D., **Panorkou, N.**, Zhu, M., Lal, P., & Samanthula, B. K. (2020). Exploring the Mathematics of Gravity, *Mathematics Teacher: Learning and Teaching PK-12 MTLT*, 113(1), 39-46.
- Basu, D. & **Panorkou, N.** (2019). Integrating covariational reasoning and technology into the teaching and learning of the greenhouse effect. *Journal of Mathematics Education*, 12(1), pp.6-23.
- Panorkou, N.** & Kobrin, J. (2017). Enhancing Teachers' Formative Assessment Practices through Learning Trajectory-Based Professional Development. *Mathematics Teacher Educator*, 5 (2), pp. 178-201.
- Panorkou, N.** & Pratt, D. (2016). Using Google SketchUp to research students' experiences of dimension in geometry. *Digital Experiences in Mathematics Education*, 2 (3), pp. 199-227.

Panorkou, N. & Maloney, A. (2016). Early Algebra: Expressing Covariation and Correspondence. *Teaching Children Mathematics*, Vol. 23 (2), pp. 90-99.

Kobrin, J. & **Panorkou, N.** (2016). The Building Blocks of Learning: An informed understanding of learning progressions can lead to more productive discussions about student work. *Educational Leadership*. Vol. 73, No. 7, pp. 32-36.

Panorkou N. & Maloney A. (2015) Elementary Students' Construction of Geometric Transformation Reasoning in a Dynamic Animation Environment. *Constructivist Foundations* 10(3): 338–347.

Panorkou N. & Maloney A. (2015) Authors' Response: Planting Seeds of Mathematical Abstraction. *Constructivist Foundations* 10(3): 352–354.

Panorkou N. (2015) Proposing a Framework for Exploring “Bridging”. *Constructivist Foundations* 10(3): 331–332.

BOOK CHAPTERS

Browning, C.A., Harrison, J.L., Harrison, R., Ko, Y., **Panorkou, N.**, & Yoder, M.A. (2016). Using children's thinking to develop mathematical content knowledge. In L.C. Hart, S. Oesterle, S.S. Auslander & A. Kajander (Eds.) *The Mathematics Education of Elementary Teachers: Issues and Strategies for Content Courses* (pp 25-50). Charlotte, NC: Information Age Publishing.

PEER-REVIEWED PUBLICATIONS IN CONFERENCE PROCEEDINGS

York, T. & **Panorkou, N.** (2023). Shape Thinking and Students' Activity with Simulations and Tables. In T. Lamberg & D. Moss (Eds) *Proceedings of the forty-fifth annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (Vol. 2) University of Nevada, Reno (pp. 663-671).

Provost, A., Lim, S., York, T. & **Panorkou, N.** (2023) Orchestrating Students' Thinking about the Rock Cycle. Proceedings of the 2023 annual conference of the International Society of the Learning Sciences (ICLS 2023). Montreal, Canada (pp. 1182-1185).

Provost, A., Lim, S., York, T. & **Panorkou, N.** (2022). Bridging Frequentist and Classical Probability Through Design. In Lischka, A. E., Dyer, E. B., Jones, R. S., Lovett, J. N., Strayer, J., & Drown, S. (Eds) *Proceedings of the forty-fourth annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*. Middle Tennessee State University, TN (pp. 1521-1529).

Germia, E., York, T., & **Panorkou, N.** (2022). How Transitions Between Related Artifacts Support Students' Covariational Reasoning. In Lischka, A. E., Dyer, E. B., Jones, R. S., Lovett, J. N., Strayer, J., & Drown, S. (Eds) *Proceedings of the forty-fourth annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*. Middle Tennessee State University, TN (pp. 1973-1982).

- York, T., Germia, E., Kim, Y., & **Panorkou, N.** (2021). Students' reorganizations of variational, covariational, and multivariational reasoning. In Olanoff, D., Johnson, K., & Spitzer, S. (2021). *Proceedings of the forty-third annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*. Philadelphia, PA (pp. 308-312).
- Panorkou, N.** & Germia, E. F. (2020). Examining students' reasoning of multiple quantities. In A.I. Sacristán, J.C. Cortés-Zavala & P.M. Ruiz-Arias, (Eds.). *Mathematics Education Across Cultures: Proceedings of the 42nd Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*, Mexico (pp. 291-295). Cinvestav / AMIUTEM / PME-NA. <https://doi.org/10.51272/pmena.42.2020>
- Panorkou, N.** & York, T. (2020). Designing for an integrated STEM+C experience. In A.I. Sacristán, J.C. Cortés-Zavala & P.M. Ruiz-Arias, (Eds.). *Mathematics Education Across Cultures: Proceedings of the 42nd Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*, Mexico (pp. 2233-2237). Cinvestav / AMIUTEM / PME-NA. <https://doi.org/10.51272/pmena.42.2020>
- Basu, D. & **Panorkou, N.** (2020). Utilizing mathematics to examine sea level rise as an environmental and a social issue. In A.I. Sacristán, J.C. Cortés-Zavala & P.M. Ruiz-Arias, (Eds.). *Mathematics Education Across Cultures: Proceedings of the 42nd Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*, Mexico (pp. 1064-1068). Cinvestav / AMIUTEM / PME-NA.
- Samanthula, B. K., Mehran, M., Zhu, M. M., **Panorkou, N.**, & Lal, P. (2020). Experiences toward an interactive cloud-based learning system for STEM education. *Proceedings of the 10th IEEE Integrated STEM Education Conference (ISEC)*.
- Panorkou, N.** & Germia, E. (2020). Examining Students' Quantitative Reasoning in a Virtual Ecosystem Simulation of the Water Cycle. In Gresalfi, M. and Horn, I. S. (Eds.), *The Interdisciplinarity of the Learning Sciences, 14th International Conference of the Learning Sciences (ICLS) 2020, Volume 2* (pp. 959-966). Nashville, Tennessee: International Society of the Learning Sciences.
- Germia, E. & **Panorkou, N.** (2020). Exploring angles in a programming environment. *Proceedings of the International Conference to Review Research in Science, Technology and Mathematics Education* (pp. 121-129). Homi Bhabha Centre for Science Education, TIFR, Mumbai.
- Basu, D. & **Panorkou, N.** (2020). Examining the role of covariational reasoning in developing students' understanding of the greenhouse effect. *Proceedings of the International Conference to Review Research in Science, Technology and Mathematics Education* (pp. 211-220). Homi Bhabha Centre for Science Education, TIFR, Mumbai.
- Zhu, M., Johnson, M., Dutta, A., **Panorkou, N.**, Samanthula, B., Lal, P. & Wang, W. (2020) Educational Simulation Design to Transform Learning in Earth and Environmental Sciences. *Proceedings of the 10th IEEE Integrated STEM Education Conference (ISEC)*.
- Panorkou, N.** (2019). Examining Dynamic Measurement Reasoning for Area and Volume. In Otten, S., Candela, A. G., de Araujo, Z., Haines, C., & Munter, C. (Eds). *Proceedings of the forty-first annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp 390-394). St Louis, MO: University of Missouri.

- Panorkou, N.** (2019). Exploring Dynamic Measurement for Volume. In M. Graven, H. Venkat, A. Essien & P. Vale (Eds.). *Proceedings of the 43rd Conference of the International Group for the Psychology of Mathematics Education* (Vol. 3, pp 177-184). Pretoria, South Africa: PME.
- Basu, D., **Panorkou, N.** & Zhu, M. (2019). Examining the social aspect of climate change through mathematics. *Proceedings of IEEE Integrated STEM education Conference (ISEC) 2019*, Princeton, NJ.
- Zhu, M., Gulati, S. & **Panorkou, N.** (2019). Simulation design and development for learning seasons and lunar phases using HTML5 and JavaScript. *Proceedings of IEEE Integrated STEM education Conference (ISEC) 2019*, Princeton, NJ.
- Panorkou, N.**, Basu, D. & Vishnubhotla, M. (2018). Investigating volume as base times height through dynamic task design. In Hodges, T.E., Roy, G. J., & Tyminski, A. M. (Eds.) *Proceedings of the 40th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*. Greenville, SC: University of South Carolina & Clemson University (pp. 271-274).
- Basu, D. & **Panorkou, N.** (2018). Expanding students' contextual neighborhoods of measurement through dynamic measurement. In Hodges, T.E., Roy, G. J., & Tyminski, A. M. (Eds.) *Proceedings of the 40th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*. Greenville, SC: University of South Carolina & Clemson University (pp. 1155-1162).
- Basu, D. & **Panorkou, N.** (2018). Examining the social aspects of the Greenhouse Effect through Mathematical Modeling. In Hodges, T.E., Roy, G. J., & Tyminski, A. M. (Eds.) *Proceedings of the 40th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*. Greenville, SC: University of South Carolina & Clemson University (pp. 1131).
- Zhu, M., **Panorkou, N.**, Etikyala, S., Basu, D., Street-Conaway, T., Iranah, P., Mazol, D., Hannum, C., Marshall, R., Lal, P. & Samanthula, B. (2018). Steerable Environmental Simulations for Exploratory Learning. In *Proceedings of E-Learn: World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education* (pp. 83-92). Las Vegas, NV, United States: Association for the Advancement of Computing in Education (AACE). Retrieved December 24, 2018 from <https://www.learntechlib.org/primary/p/184951/>.
- Panorkou, N.** (2018). Rethinking the teaching and learning of Area Measurement. In Kay, J. and Luckin, R. (Eds.) *Rethinking Learning in the Digital Age: Making the Learning Sciences Count*, 13th International Conference of the Learning Sciences (ICLS) 2018, Volume 2 (pp. 863-870). London, UK: International Society of the Learning Sciences.
- Zhu, M., **Panorkou N.**, Lal, P., Etikyala S., Germia, E., Iranah, P., Samanthula, B. and Basu, D. (2018). Integrating Interactive Computer Simulations into K-12 Earth and Environmental Science. *Proceedings of IEEE Integrated STEM education Conference (ISEC) 2018*, pp. 220-223, Princeton, NJ.
- Panorkou, N.** (2017) Dynamic Measurement: The crossroad of area and multiplication. In E. Galindo & J. Newton, (Eds.), *Proceedings of the 39th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 339-

346). Indianapolis, IN: Hoosier Association of Mathematics Teacher Educators.

Panorkou, N. and Vishnubhotla M. (2017). Counting Square Units Is Not Enough: Exploring Area Dynamically. In T. A. Olson & L. Venenciano (Eds.), *Proceedings of the 44th Annual Meeting of the Research Council on Mathematics Learning*, Fort Worth, TX (pp. 97-104).

Seventko, J., **Panorkou, N.** and Greenstein, S. (2017). Balancing Teachers' Goals and Students' Play in a Sandbox-Style Game Environment. In T. A. Olson & L. Venenciano (Eds.), *Proceedings of the 44th Annual Meeting of the Research Council on Mathematics Learning*, Fort Worth, TX (pp. 73-80).

Panorkou, N. (2016). Developing students' thinking of dynamic measurement. In Wood, M. B., Turner, E. E., Civil, M. & Eli, J. A. (Eds) *Proceedings of the 38th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*, Tucson, AZ: The University of Arizona, pp. 308.

Greenstein, S., **Panorkou, N.**, Seventko, J. (2016). Optimizing Teacher and Student Agency in Minecraft-Mediated Mathematical Activity. In Wood, M. B., Turner, E. E., Civil, M. & Eli, J. A. (Eds) *Proceedings of the 38th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*, Tucson, AZ.

Panorkou, N. & Greenstein, S. (2015). A Learning Trajectory for Transformation-based Reasoning in Geometry. In Che, S. M. and Adolphson, K. A. (Eds.). *Proceedings of the 42nd Annual Meeting of the Research Council on Mathematics Learning*. Las Vegas, NV (pp. 25-32).

Panorkou, N., Maloney, A. P., Confrey, J. and Platt, D. (2014). Developing elementary students' reasoning of geometric transformations through dynamic animation. In G. Futschek & C. Kynigos (Eds.), *Proceedings of the 3rd International Constructionism Conference* (pp. 481-489). Vienna: Austrian Computer Society.

Panorkou N., Maloney A. and Confrey J. (2013). A Learning Trajectory for Early Equations and Expressions for the Common Core Standards. *Proceedings of the Annual Conference of the North American Chapter of the International group for the Psychology of Mathematics Education*, November 2013.

Panorkou, N & Pratt, D (2011) Using Google SketchUp to research children's experience of dimension. In B. Ubuz (Eds) *Proceedings of the 35th Conference of the International Group for the Psychology of Mathematics Education*, Vol. 3, pp. 337-344. Ankara, Turkey: PME.

Panorkou, N & Pratt, D (2011) Designing windows for researching children's experiences of dimension. In M. Joubert, A. Clark-Wilson and M. McCab (Eds) *Proceedings of the International conference of technology in mathematics teaching*, Portsmouth: ICTMT'10.

Panorkou, N (2011) A phenomenographic study on students' experiences of dimension. *Proceedings of the International Symposium Elementary Mathematics Teaching*. Prague: SEMT' 11

Panorkou, N & Pratt, D. (2009) Mapping experience of dimension. In Tzekaki, M., Kaldrimidou, M. & Sakonidis, C. (Eds.). *Proceedings of the 33rd Conference of the International Group for the Psychology of Mathematics Education*, Vol. 4, pp. 281-288.

Thessaloniki, Greece: PME.

Panorkou, N. (2009), Thinking about dimension. In Tzekaki, M., Kaldrimidou, M. & Sakonidis, C. (Eds.). *Proceedings of the 33rd Conference of the International Group for the Psychology of Mathematics Education*, Vol. 5, pp. 481. Thessaloniki, Greece: PME.

DIGITAL PRODUCTS

ACMES Research Team (2018). Integrated Simulations on Planetary Science and Earth System Science. https://acmes.online/view_simulation_links

ACMES Research Team (2018). Student platform for integrated modules. <http://acmes.online>

Panorkou, N. (2018). Dynamic Measurement for Volume Geogebra book. <https://www.geogebra.org/m/jEjsmnr>

Panorkou, N. (2016). Dynamic Measurement for Area Geogebra book. <https://www.geogebra.org/m/pxnjvwfc>

Confrey J, Nguyen K., Lee K., Corley A., **Panorkou N.** & Maloney A. (2012) *Learning Trajectories, Descriptors, & Bridging Standards for the Common Core State Standards for Mathematics*. North Carolina State University. Raleigh. [URL: www.turnonccmath.net]

DISSERTATION

Panorkou, N. (2011) A phenomenographic study of students' experiences of dimension. British Library: Electronic Theses Online Service (EThos) Available [here](#).

INVITED TALKS

Panorkou, N. (2024) Mathematical Modeling in K-12 Education. Invited lecture at the College of Holy Cross, Worcester, MA, February 2024.

Panorkou, N. (2022) How to build and pivot your research agenda. Invited presentation at the Annual Meeting of the National Academy of Education, Washington DC, November 2022.

Panorkou, N. (2018) When counting cubes is not enough: Exploring volume measurement dynamically. Invited presentation at the Annual Meeting of the National Academy of Education, Washington DC, November 2018.

Panorkou, N. (2018). When counting cubes is not enough: Exploring volume measurement dynamically. Invited presentation at the special session "Excellence in Education Research: Early-Career Scholars and Their Work" of the annual American Educational Research Association conference, New York City, April 2018.

Panorkou, N. (2016). Unlocking the Power of Student's Thinking on Geometric Measurement. Invited presentation given at the (New)³ Conference, a joint conference of the Association

of Mathematics Teachers of NEW York, the Association of Mathematics Teachers of NEW Jersey, and the Association of Teachers of Mathematics in NEW England, Iona College, June 2016.

Kobrin, J. & **Panorkou N.** (2015). Insight Learning System. Invited virtual presentation given at the SUDDS Lunch and Learn seminar series, College of Education, North Carolina State University, October 2015.

Panorkou, N., Greenstein S. & Krupa, E. (2015). Meaningful Technologies for Mathematical Thinking. Presentation given at the conference Interdisciplinary Mathematical Thinking in the Post-bac World, Montclair State University, April 2015.

Panorkou, N. (2014). Using learning trajectories for organizing the instructional core around CCSS-M. Presentation given at the Association of Mathematics Teachers of New Jersey (AMTNJ) conference, New Brunswick, October 2014.

Panorkou, N. (2013). Triggering the development of foundational mathematical reasoning in elementary schooling. Seminar at Montclair State University, 18th February 2013.

Confrey J, Nguyen K., Lee K., **Panorkou, N.** Corley A., Maloney A. (2012) Turn on Common Core Math: Unpacking the Learning Trajectories for Teachers”, research seminar at the Brown Bag seminar Series, Friday Institute for Educational Innovation, North Carolina university, 15th February 2012.

Panorkou, N. (2011) Students experiences of dimension: A phenomenographic study, research seminar at the Brown Bag Seminar Series, Friday Institute for Educational Innovation, North Carolina University, 14th September 2011.

Panorkou, N. (2011) “Designing windows for researching students’ experiences of dimension”, research seminar at the Mathematics Education Special Interest group, Institute of Education, University of London, 16th June 2011.

Panorkou, N. (2011) “A phenomenographic study of students' experiences of dimension”, research seminar at the Midlands Mathematics Education Seminars, University of Nottingham 10th May 2011.

Panorkou, N. (2011) “Using Google SketchUp for researching students’ experiences of dimension”, research seminar at the Mathematics Education Special Interest group, Institute of Education, University of London, 27th January 2011.

CONFERENCE PRESENTATIONS

Panorkou, N. & Provost, A. (July 2024 – under review). Reasoning Quantitatively about the Lunar Phases. Presentation to be given at the 2024 annual conference of the International Group for the Psychology of Mathematics Education, Auckland, New Zealand.

Panorkou, N. & Provost, A. (June 2024 – under review). Integrating Math and Science through Interactive Simulations. Presentation to be given at the 2024 annual meeting of the International Society of the Learning Sciences (ISLS), Buffalo NY.

Provost, A. & **Panorkou, N.** (June 2024 – under review). Student's Systems Thinking with the Water Cycle Simulation. Presentation to be given at the 2024 annual meeting of the International Society of the Learning Sciences (ISLS), Buffalo NY.

Panorkou, N. & Provost, A. (July 2024 - accepted). Engineering Students' Covariational Reasoning in Investigations of Science Phenomena. Presentation to be given at the 15th International Congress on Mathematics Education, Sydney, Australia.

Panorkou, N. & Provost, A. (July 2024 - accepted). Students' Constructions and Reorganizations of Meanings about Multivariation. Presentation to be given at the 15th International Congress on Mathematics Education, Sydney, Australia.

Panorkou, N., Provost, A. & Vas Nunes, H. (April, 2024 - accepted). Supporting Students' System Thinking of the Water Cycle through a Virtual Interactive Ecosystem Simulation. Presentation to be given at the 2024 American Educational Research Association (AERA) Annual Meeting, Philadelphia, PA.

York, T. & **Panorkou, N.** (October, 2023). Shape Thinking and Students' Activity with Simulations and Tables. *Presentation given at the forty-fifth annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education.*

Provost, A. & **Panorkou, N.** (October, 2023). Exploring Lunar Phases by Co-Splitting Fractions and Angles *Presentation given at the forty-fifth annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education.*

Provost, A., York, T., Lim, S., & **Panorkou, N.** (June, 2023). Orchestrating Students' System Thinking about the Rock Cycle. Presentation given at the 2023 annual meeting of the International Society of the Learning Sciences (ISLS), Montreal, Canada.

Provost, A. & **Panorkou, N.** (April 2023). Co-splitting Fraction and Angle Measures of a Circle to Reason about Lunar Phases. Presentation given at the 2023 American Educational Research Association (AERA) Annual Meeting.

Provost, A., Lim, S., York, T., & **Panorkou, N.** (2022). Bridging Frequentist and Classical Probability Through Design, Presentation given at the forty-fourth annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education. Nashville, TN.

Germia, E., York, T., & **Panorkou, N.** (2022). How Transitions Between Related Artifacts Support Students' Covariational Reasoning. Presentation given at the forty-fourth annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education. Nashville, TN.

Panorkou, N., York, T., Germia, E., & Kim, Youngjun (2022). Examining Students' Progression of Variational, Covariational, and Multivariational Reasoning. Presentation given at the 2022 American Educational Research Association (AERA) Annual Meeting, April 2022.

- Germia, E. & **Panorkou, N.** (2022). Students' Reasoning About Dynamic Angles. Presentation given at the 2022 American Educational Research Association (AERA) Annual Meeting, April 2022.
- York, T., Germia, E., Kim, Y., & **Panorkou, N.** (2021). Students' reorganizations of variational, covariational, and multivariational reasoning. Online presentation given at the forty-third annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education. Philadelphia, PA, October 2021.
- Panorkou, N.** (2021). Dynamic Measurement for Area and Volume. Online presentation given at the 14th International Congress on Mathematical Education (ICME), July 2021.
- Germia, E. & **Panorkou, N.** (2021) Integrating covariational reasoning in the learning of science: the case of gravity. Online presentation given at the 14th International Congress on Mathematical Education (ICME), July 2021.
- Basu, D. & **Panorkou, N.** (2021) Task design features for integrating covariational reasoning with science. Online presentation given at the 14th International Congress on Mathematical Education (ICME), July 2021.
- York, T., Germia, E. & **Panorkou, N.** (2021). Integrating the STEM Disciplines Through Debugging. Online presentation given at the Annual conference of the American Educational Research Association (AERA), April 2021.
- Panorkou, N.** & Germia, E. F. (2020). Examining students' reasoning of multiple quantities. Presentation given at the 42nd Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, Mexico. (Conference postponed to June 2021)
- Panorkou, N.** & York, T. (2020). Designing for an integrated STEM+C experience. Presentation given at the 42nd Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, Mexico. (Conference postponed to June 2021)
- Basu, D. & **Panorkou, N.** (2020). Utilizing mathematics to examine sea level rise as an environmental and a social issue. Presentation given at the 42nd Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, Mexico. (Conference postponed to June 2021)
- Samanthula, B. K., Mehran, M., Zhu, M. M., **Panorkou, N.**, & Lal, P. (2020). Experiences toward an interactive cloud-based learning system for STEM education. Presentation given at the 10th IEEE Integrated STEM Education Conference (ISEC).
- Panorkou, N.** & Germia, E. (2020). Examining students' quantitative reasoning in virtual ecosystem simulation of the water cycle. Online presentation given at the 14th International Conference of the Learning Sciences (ICLS), Nashville, June 2020.
- Germia, E. & **Panorkou N.** (2020). Integrating covariational reasoning into the learning of gravity. Online presentation given at the Annual conference of the American Educational Research Association (AERA), San Francisco, April 2020.

- Basu, D. & **Panorkou N.** (2020). Examining students' covariational reasoning and their understanding of the greenhouse effect through dynamic mathematical activities. Online presentation given at the Annual conference of the American Educational Research Association (AERA), San Francisco, April 2020.
- Basu, D. & **Panorkou N.** (2020). Fight climate change with mathematics! Annual conference of the National Council of Teachers of Mathematics, Chicago, April 2020 (Conference canceled).
- Germia, E. & **Panorkou N.** (2020). Integrating mathematics and coding into the learning of shadows. Annual conference of the National Council of Teachers of Mathematics, Chicago, April 2020 (Conference canceled).
- Basu, D. & **Panorkou N.** (2020). Examining the role of covariational reasoning in developing students' understanding of the greenhouse effect. Presentation given at the eighth International Conference to Review Research in Science, Technology and Mathematics Education (epiSTEME 8), January 2020.
- Germia, E. & **Panorkou N.** (2020). Exploring Angles in a Programming Environment. Presentation given at the eighth International Conference to Review Research in Science, Technology and Mathematics Education (epiSTEME 8), January 2020.
- Panorkou, N.** (2019). Examining Dynamic Measurement Reasoning for Area and Volume. Presentation given at the 41st annual conference of the North American Chapter of the International Group for the Psychology of Mathematics Education (PME-NA), St. Louis, Missouri, November 2019.
- Panorkou, N.** (2019). Exploring Dynamic Measurement for Volume. In M. Graven, H. Venkat, A. Essien & P. Vale (Eds.). *Presentation given at the 43rd Conference of the International Group for the Psychology of Mathematics Education* (Vol. 3, pp 177-184). Pretoria, South Africa: PME, July 2019.
- Panorkou, N.** (2019). Exploring Volume Measurement Dynamically. Presentation given at the Research conference of the National Council of Teachers of Mathematics, San Diego, California, April 2019.
- Panorkou, N.** & Basu, D. (2019). Exploring Gravity through Mathematics. Presentation given at the Research conference of the National Council of Teachers of Mathematics, San Diego, California, April 2019.
- Basu, D. & **Panorkou, N.** (2019). Greenhouse effect: An Issue of Social Justice through Mathematical Lens. Presentation given at the Research conference of the National Council of Teachers of Mathematics, San Diego, California, April 2019.
- Germia, E. & **Panorkou, N.** (2019). Exploring coordinates using coding. Presentation given at the the Research conference of the National Council of Teachers of Mathematics, San Diego, California, April 2019.
- Germia, E. & **Panorkou, N.** (2019). Trending Mathematics with Coding. Presentation given at the Annual conference of the National Council of Teachers of Mathematics, San Diego, California, April 2019.

- Vishnubhotla, M. & **Panorkou, N.** (2019). Explore the Distinction between Quadratic and Exponential Growth Using Dynamic Tasks. Presentation given at the Annual conference of the National Council of Teachers of Mathematics, San Diego, California, April 2019.
- Panorkou, N.** (2019). Exploring Dynamic Measurement for Volume. Presentation given at the Annual conference of the American Educational Research Association (AERA), Toronto Canada, April 2019.
- Basu, D. & **Panorkou, N.** (2019). Examining the social aspects of the Greenhouse effect through mathematics. Presentation given at the Annual conference of the American Educational Research Association (AERA), Toronto Canada, April 2019.
- Basu, D., **Panorkou, N.** & Zhu, M. (2019). Examining the social aspect of climate change through mathematics. Paper presented at the IEEE Integrated STEM education Conference (ISEC) 2019, Princeton, NJ.
- Zhu, M., Gulati, S. & **Panorkou, N.** (2019). Simulation design and development for learning seasons and lunar phases using HTML5 and JavaScript. Paper presented at the IEEE Integrated STEM education Conference (ISEC) 2019, Princeton, NJ.
- Basu, D. & **Panorkou, N.** (2019). Developing students' consciousness about Greenhouse Effect through dynamic mathematical activities. Presentation given at the Joint Mathematics Meetings, Baltimore, MD, January 2019.
- Panorkou, N.**, Basu, D. & Vishnubhotla, M. (2018) Investigating volume as base times height through dynamic task design. Paper presented at the North American Chapter of the International Group for the Psychology of Mathematics Education (PMENA), Greenville, South Carolina, November 2018.
- Basu, D. & **Panorkou, N.** (2018) Expanding students' contextual neighborhoods of measurement through dynamic measurement. Paper presented at the North American Chapter of the International Group for the Psychology of Mathematics Education (PMENA), Greenville, South Carolina, November 2018.
- Basu, D., & **Panorkou, N.** (2018) Examining the Social Aspects of Greenhouse Effect through Mathematical Modeling. Poster presented at the North American Chapter of the International Group for the Psychology of Mathematics Education (PMENA), Greenville, South Carolina, November 2018.
- Zhu, M., **Panorkou, N.**, Etikyala, S., Basu, D., Street-Conaway, T., Iranah, P., Mazol, D., Hannum, C., Marshall, R., Lal, P. & Samanthula, B. (2018). Steerable Environmental Simulations for Exploratory Learning. Presentation given at the *E-Learn: World Conference on E-Learning*, Las Vegas, NV, United States.
- Panorkou, N.** (2018). Rethinking the teaching and learning of Area Measurement. Presentation given at the 13th International Conference of the Learning Sciences (ICLS), London U.K., June 2018.
- Panorkou, N.** & Vishnubhotla M. (2018). Using Dynamic Design to Illustrate the Multiplicative Relationship of Area. Presentation given at the National Council of Teachers of Mathematics 2018 Research Conference, Washington D.C., April 2018.

- Basu, D. & **Panorkou, N.** (2018). Evaluating the impact of Dynamic Measurement on students' thinking of area. Presentation given at the National Council of Teachers of Mathematics 2018 Research Conference, Washington D.C., April 2018.
- Panorkou, N.**, Greenstein, S. and Sevetko, J. (2018). Designing for Student and Teacher Agency in a Sandbox-style Video Gaming Environment. Presentation given at the Annual conference of the American Educational Research Association (AERA), New York City NY, April 2018.
- Zhu, M., **Panorkou, N.**, Lal, P., Etikyala, S., Germia E.F., Iranha, P., Samanthula, B. K., Basu, D. (2018). Integrating Interactive Computer Simulation into K-12 Earth and Environmental Science. Presentation given at the IEEE Integrated STEM Education Conference, Princeton, NJ.
- Roeder, M. & **Panorkou, N.** (2017) Climb Aboard with Scratch Programming: An Engaging Way to Learn Coordinates. Presentation given at the 2017 NCTM Chicago Regional Conference, Chicago, Illinois, November 2017.
- Roeder, M. & **Panorkou, N.** (2017) Climb Aboard with Scratch Programming: An Engaging Way to Learn Coordinates. Presentation given at the 2017 NCTM Orlando Regional Conference, Orlando, Florida, October 2017.
- Panorkou, N.** (2017) Dynamic Measurement: The crossroad of area and multiplication. Presentation given at the 39th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, Indianapolis, IN, October 2017.
- Vishnubhotla M. & **Panorkou, N.** (2017) A Learning Trajectory for Visualizing Area as a Dynamic Continuous Quantity. Presentation given at the National Council of Teachers of Mathematics 2017 Research Conference, San Antonio, Texas, April 2017.
- Basu D., Vishnubhotla M. & **Panorkou, N.** (2017) Visualizing the area formula dynamically: Why length times width? Presentation given at the NCTM National Annual Meeting & Exposition, San Antonio, Texas, April 2017.
- Panorkou, N.** & Vishnubhotla M. (2017). Counting Square Units Is Not Enough: Exploring Area Dynamically. Presentation given at the 44th Annual Meeting of the Research Council on Mathematics Learning, Fort Worth, Texas, March 2017.
- Seventko, J., **Panorkou, N.** and Greenstein, S. (2017). Balancing Teachers' Goals and Students' Play in a Sandbox-Style Game Environment. Presentation given at the 44th Annual Meeting of the Research Council on Mathematics Learning, Fort Worth, Texas, March 2017.
- Panorkou, N.**, Vishnubhotla M. & Basu D. (2016) Making sense of length times width through Dynamic Task Design. Presentation given at the Annual conference of the Association of Mathematics Teachers of New Jersey, December 2016.
- Panorkou, N.** (2016). Developing students' thinking of dynamic measurement. Poster presented at the 38th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, Tucson, AZ, November 2016.

- Greenstein, S., **Panorkou, N.** & Seventko, J. (2016). Optimizing Teacher and Student Agency in Minecraft-Mediated Mathematical Activity. Paper presented at the 38th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, Tucson, AZ, November 2016.
- Panorkou, N.**, Vishnubhotla M. & Basu D. (2016) Developing students' thinking of dynamic measurement. Presentation given at the NCTM 2016 Regional Conference & Exposition: Philadelphia, Pennsylvania, October 2016.
- Panorkou, N.** & Kobrin J. (2016). Enhancing teachers' formative assessment practices: Using learning trajectories in professional development. Paper presented at the 13th International Congress on Mathematical Education (ICME), Hamburg, Germany, July 2016.
- Panorkou, N.** & Leszczynski E. (2016). Designing a clinical interview experience for pre-service elementary teachers. Presentation given at the Tenth Annual Conference of the New Jersey Association of Mathematics Teacher Educators, Trenton, NJ, June 2016.
- Kobrin, J. & **Panorkou, N.** (2016). Designing Professional Development to support teachers in learning trajectory-based instruction. Paper presented at the Annual research conference of the National Council of the Teachers of Mathematics (NCTM), San Francisco, April 2016.
- Panorkou, N.** & Kobrin, J. (2016). Designing Professional Development around Learning Trajectory-based instruction. Paper presented at the Annual conference of the American Educational Research Association (AERA), Washington DC, April 2016), April 2016.
- Kobrin, J. & **Panorkou, N.** (2016). Learning Trajectories in Professional Development: Enhancing Teachers' Formative Assessment Practices. Paper presented at the Annual Conference of the Association of Mathematics Teacher Educators (AMTE), January 2016.
- Panorkou, N.** & Greenstein, S. (2015). A Learning Trajectory for Transformation-based Reasoning in Geometry. Poster presented at the 16th Biennial EARLI conference for Research on Learning and Instruction, August 2015.
- Petrou, M. & **Panorkou, N.** (2015). Using the Knowledge Quartet as a tool for introducing the mathematics teaching practices. Paper presented at the 16th Biennial EARLI conference for Research on Learning and Instruction, August 2015.
- Kobrin, J. & **Panorkou, N.** (2015). Using a Mathematics Learning Trajectory to Enhance Teaching Practices Through Formative Assessment. Presentation given at the New Jersey Association of Mathematics Teacher Educators Ninth Annual Conference, May 2015.
- Panorkou, N.** & Greenstein, S. (2015). A Learning Trajectory for Transformation-based Reasoning in Geometry. Paper presented at the Research Council for Mathematics Learning Conference, Las Vegas, February 2015.
- Scioscia, P. & **Panorkou, N.** (2014) Using NJVid in Teacher Education. Paper presented at the NJEDGE Annual Conference, Plainsboro NJ, November 2014.
- Panorkou, N.** (2014). Using learning trajectories for organizing the instructional core around CCSS-M. Paper presented at the Association of Mathematics Teachers of New Jersey (AMTNJ) conference, New Brunswick, October 2014.

- Panorkou, N.**, Maloney A., Confrey J. & Platt, D. (2014). Developing elementary students' reasoning of geometric transformations through dynamic animation. Paper presented at the International conference on Constructionism, Austria, August 2014.
- Panorkou, N.** & Platt, D. (2014). Facilitating the teaching and learning of geometric transformations through motion animation. Paper presented at the Emerging Learning Design conference, Montclair State University, May 2014.
- Panorkou, N.** (2014). Covariation and Correspondence relationships in elementary schooling. Paper presented at the Research Conference of the National Council of the teachers of Mathematics (NCTM), New Orleans, April 2014.
- Maloney, A. & **Panorkou, N.** (2014) Learning trajectories as a Framework for Inservice Teacher Professional Development Courses. Paper presented at the Annual Conference of the Association of Mathematics Teacher Educators (AMTE), Irvine CA, February 2014.
- Panorkou, N.** & Maloney, A. P. (2014). Chopsticks, Lobsters, and Roadrunners: How Are They Related? Paper presented at the Annual meeting of the National Council of the teachers of Mathematics (NCTM), New Orleans, April 2014.
- Confrey, J. & **Panorkou, N.** (2014). Fair-sharing: Many Times More than Meets the Eye! Paper presented at the Annual meeting of the National Council of the teachers of Mathematics (NCTM), New Orleans, April 2014.
- Panorkou N.**, Maloney A. and Confrey J. (2013). A Learning Trajectory for Early Equations and Expressions for the Common Core Standards. Paper presented at the Annual Conference of the North American Chapter of the International group for the Psychology of Mathematics Education, Chicago, November 2013.
- Panorkou, N.** (2013). Developing elementary students' understanding of functional relationships. Paper presented at the Annual Conference of the Association of Mathematics Teachers in New Jersey, East Windsor, October 2013.
- Lee K., **Panorkou N.**, Confrey J, Corley A., Nguyen K. H., Maloney, A. (2013) *Supporting students' early development of multiplicative structures*, interactive paper session presented at the Annual conference of the National Council of Teachers of Mathematics (NCTM), April 2013.
- Confrey J. Maloney A., **Panorkou N.**, Lee K., Corley A., McGowan W. and Avineri T. (2013) *Using learning trajectories to interpret the Common Core Math Standards*, discussion session presented at the Annual conference of the National Council of Teachers of Mathematics (NCTM), April 2013.
- Panorkou N.** and Confrey J. (2012) *Unpacking Shapes and Angles in CCSS-M*, session presented at the Annual conference of the North Carolina Council of teachers of Mathematics (NCCTM), Oct 2012.
- Confrey J., Maloney A., Nguyen K. H., Corley A., **Panorkou N.** and Lee, K. (2012) *Interactive Diagnostic Assessments for Rational Number Reasoning: LPPSync*, work session presented

at the Annual conference of the National Council of Teachers of Mathematics (NCTM), April 2012.

Panorkou, N. (2011) *A phenomenographic study on students' experiences of dimension*, paper presented at the International Symposium Elementary Mathematics Teaching, August 2011.

Panorkou, N. and Pratt, D. (2011) *Using Google SketchUp to research children's experience of dimension*, paper presented at the 35th Conference of the International Group for the Psychology of Mathematics Education, July 2011.

Panorkou, N. (2011) *Designing windows for researching children's experiences of dimension*, paper presented at the International conference of technology in mathematics teaching, July 2011.

Panorkou, N. (2009) *Changes of thinking about dimension*, paper presented at the BERA Annual conference, University of Manchester, September 2009.

Panorkou, N. (2009) Thinking about dimension, seminar given at the PME conference, Aristotle University of Thessaloniki, July 2009.

Panorkou, N. and Pratt, D. (2009) Mapping experience of dimension, seminar given at the PME conference, Aristotle University of Thessaloniki, July 2009.

Panorkou, N. (2009) *Mapping experience of dimension: Characterising dimensional thinking*, seminar given at the BSRLM Day Conference, University of Cambridge, February 2009.

Panorkou, N. (2007) *Embracing two-dimensional and three-dimensional geometry*, seminar given at the Institute of Education Doctoral School Conference, June 2007.

PROFESSIONAL DEVELOPMENT (PD) WITH INSERVICE TEACHERS

The following PD was designed and given to teachers through PRISM (Professional Resources In Science and Mathematics) at Montclair State University:

Content-focused PD

- Teaching for Understanding Decimals: Content Knowledge, instruction, and assessment Grades 4-6
- Teaching for Understanding Addition & Subtraction of Fractions: Content Knowledge, instruction, and assessment Grades 3-4
- Teaching for Understanding Multiplication & Division of Fractions: Content Knowledge, instruction, and assessment Grades 5-6
- Teaching for Understanding Ratios and Proportions: Content Knowledge, instruction, and assessment Grades 6-8
- Teaching for Understanding Percents: Content Knowledge, instruction, and assessment Grades 6-7
- Teaching Repeating Decimals
- Teaching functions for robust understanding: Connecting pattern relationships, equivalent expressions, and functions
- Addition & Subtraction Problem Solving Grades K-6
- Teaching Fractions for Understanding: Comparing fractions mentally Grades 3-4

Pedagogy-focused PD

- Selecting, Modifying, and Implementing Rich Math Tasks for Conceptual Understanding
- Teaching mathematics with technology
- Improving Learning through Questioning: How can we ask questions that improve thinking and reasoning

Online Teaching during Covid-focused PD

- Teaching Number and Number Sense Virtually
- Teaching Nets, Surface Area, and Volume Virtually
- Teaching Ratios Virtually
- Teaching Equations Virtually
- Teaching Geometric Transformations Virtually
- Teaching Rational Numbers Virtually
- Teaching Equivalence & Addition & Subtraction of Fractions Virtually
- Teaching Multiplication and Division of Fractions Virtually
- Teaching Functions Virtually
- Teaching Percents Virtually
- Teaching Inequalities Virtually
- Writing and Evaluating Expressions Virtually
- Teaching Area Measurement Virtually
- Teaching K-3 Geometry Virtually

PD contracts with Public School Districts through Montclair State University

- Westwood Public Schools District, Professional Development for 6th, 7th, Algebra 1, Algebra 2, Geometry, and PreCalc teachers, Summer 2023 – Summer 2024
- Kearny Public Schools District, PD sessions for the middle school and the high school, Spring 2022.
- Montclair Public Schools District, PD sessions on vertical alignment in grades 4, 5, and 6, Spring & Fall 2020.
- Bayonne Public Schools District, PD sessions with math and science middle school teachers, Integrating Science and Mathematics, Winter 2019
- Lafayette Public School District, PD sessions on curriculum and vertical alignment with all teachers in grades K-8, Summer 2018.
- Newark Public Schools, Teaching mathematics with technology, Professional Development course for Grades 5 & 6, Common Core Standards for Mathematics: Race To The Top 3, Fall 2013 - Spring 2014.

PROFESSIONAL MEMBERSHIPS

- National Council of Teachers of Mathematics (NCTM)
- National Association of Mathematics Teacher Educators (AMTE)
- International Group for the Psychology of Mathematics Education (PME)
- North American Chapter of the International Group for the Psychology of Mathematics Education (PME-NA)

- International Society of the Learning Sciences (ISLS)
- American Educational Research Association (AERA)
- International Commission on Mathematical Instruction (ICMI)
- New Jersey Association of Mathematics Teacher Educators (NJAMTE)
- Association of Mathematics Teachers of New Jersey (AMTNJ)
- Association of Mathematics Teachers of New York State (AMTNY)
- European Association for Research in Learning and Instruction (EARLI)

SERVICE

Service for the Mathematics Education community

President on the executive board of the New Jersey Association of Mathematics Teacher Educators (NJAMTE), 2022 – present.

Four-year college representative on the board of the New Jersey Association of Mathematics Teacher Educators (NJAMTE), 2016 – 2022.

Organizer of the 2023 NJAMTE annual conference, June 2023 and June 2024.

Member-at-large on the executive board of the Association of Mathematics Teachers in New Jersey (AMTNJ), 2016 – present.

Member of the Teacher Outreach committee on the board of the Association of Mathematics Teachers in New Jersey (AMTNJ), 2016 – present.

Advisory Board Member on the DRK-12 NSF proposal “Rational Numbers Playground: Applying and Refining a Model for Dynamic, Discussion-Based PD for Fractions, Ratios, and Proportions” (PIs Chandra Orrill, Rachael Brown, Al Cohen) 2022 – 2026.

Reviewer of grant proposals for the dissertation and postdoctoral fellowships of the National Academy of Education, Fall 2023 – present.

Review panel member reviewing grant proposals for the Discovery Research PreK-12 program of the Division of Research on Learning in Formal and Informal Settings of National Science Foundation, Spring 2019.

Reviewer of papers for the journals:

- Cognition and Instruction
- Journal for Research in Mathematics Education
- Mathematical Thinking and Learning
- Journal of Mathematical Behavior
- Mathematics Teacher Educator
- Digital Experiences in Mathematics Education
- British Journal of Educational Technology
- Mathematics Teacher: Learning and Teaching Pre-K–12

- Teaching Children Mathematics
- NCSM Journal of Mathematics Education Leadership
- Journal of Teacher Education

Reviewer of papers for the following conferences:

- 2023 International Conference of the Learning Sciences (ICLS), Fall 2022
- 2022 Conference of the Psychology of Mathematics Education - North American Chapter (PME-NA 44), Spring 2022
- 2021 Conference of the Psychology of Mathematics Education - North American Chapter (PME-NA 43), Spring 2021
- 2020 Conference of the Psychology of Mathematics Education - North American Chapter (PME-NA 42), Spring 2020
- 2019 Conference of the Psychology of Mathematics Education - North American Chapter (PME-NA 41), Spring 2019
- 2019 Research Conference of the National Council of the teachers of Mathematics (NCTM), Fall 2018.
- 2017 Conference of the Psychology of Mathematics Education - North American Chapter (PME-NA 39), Spring 2017.
- 2017 Research Conference of the National Council of the teachers of Mathematics (NCTM), Fall 2016.
- 2016 Conference of the Psychology of Mathematics Education - North American Chapter (PME-NA 38), Spring 2016.
- 13th International Congress on Mathematical Education (ICME), Fall 2015.
- 2015 Conference of the Psychology of Mathematics Education - North American Chapter (PME-NA 37), Spring 2015.
- 2015 Annual Conference of the Association of Mathematics Teacher Educators (AMTE), Fall 2014
- 2014 Research Conference of the National Council of the teachers of Mathematics (NCTM), Fall 2013.
- 35th Annual Conference of the North American Chapter of the International group for the Psychology of Mathematics Education, Spring 2013.
- 7th Congress of the European Society for Research in Mathematics Education, Fall 2010.

Mentor to doctoral students at the 2023 conference of the International Society of the Learning Sciences (ISLS 2023), Summer 2023.

Mentor to dissertation and postdoc fellows at the National Academy of Education, Fall 2022.

Mentor to doctoral students at the 2018 Conference of the Psychology of Mathematics Education - North American Chapter (PME-NA 40), Fall 2018.

Senior Reviewer for JURE, a section of the 16th Biennial EARLI conference for Research on Learning and Instruction, Spring 2015.

Expert Reviewer for the 2015 Research Conference of the National Council of the teachers of Mathematics (NCTM), Fall 2014.

Local organizer of the British Society into the Learning of Mathematics Conference (BSRLM), Institute of Education, University of London, March 2011.

Service for Montclair State University

At-large officer at the University Senate of Montclair State University (2016-2022, 2023 – Present)

CSAM Research Task Force (2023 – Present)

DPAC/Sabbatical committee, Department of Mathematics (2019 – 2020, 2022-2023, 2023-2024)

Faculty Assessment Committee, Department of Mathematics (2023 – Present)

Communications and Outreach committee, Department of Mathematics (2014 – Present).

Doctoral Program Director, PhD in Mathematics Education (Fall 2022, Fall 2024 -).

Search committee for the mathematics education faculty positions (2013 – 2015, 2017 – 2018, 2022-2023).

Academic Affairs Committee of the University Senate (2021 - 2022).

Student Affairs Committee of the University Senate (2016 - 2021).

Elections Committee of the University Senate (2016 - 2022).

College of Mathematics and Science Curriculum committee (2016 – 2021).

Mathematics Department Steering committee (2020 – 2022).

Graduate committee of the department of Mathematics (2016-2021).

Assessment committee of the department of Mathematical Sciences (2015-2019).

Chair of the Math Education Special Interest Group of our department (2019-2022).

Coordinator of MTHM 201 and MTHM 302 courses, Department of Mathematics (2014 – Present).

Library and Comprehensive Exam committees (2013 – 2014).

Lead Advisor in the Hellenic Student Organization at Montclair State University (2014 – 2020).