Karl W. Kosko

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EDUCATION

Virginia Tech, Blacksburg, VA
Ph.D., Curriculum & Instruction: Mathematics Education, May 2010
Dissertation Title: Mathematical Discussion and Self-Determination Theory
Advisor: Jesse L. M. Wilkins

Winthrop University, Rock Hill, SC
M.Ed., Middle Level Education / Concentration in Mathematics, December 2005
B.S., Elementary Education / Mathematics Minor, May 2002
- Hold equivalent course background to a Bachelors in Mathematics.

RESEARCH

Journal Articles (Peer Reviewed)

Austin, C. K., & Kosko, K. W. (2022). Representations of Practice Used in Mathematics Methods Courses. *Contemporary Issues in Technology and Mathematics Teacher Education, 22*(1), 60-76. https://www.learntechlib.org/primary/p/219480/paper_219480.pdf

Ferdig, R. E., Kosko, K. W., & Gandolfi, G. (2022). Using the COVID-19 pandemic to create a vision for XR-based teacher education field experiences. *Journal of Technology and Teacher Education, 30*(2), 239-252. https://www.learntechlib.org/primary/p/221194

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Kosko, K. W., Weston, T. L., & Amador, J. (2021). 360 video as an immersive representation of practice: Interactions between reported benefits and teacher noticing. *Mathematics Teacher Education and Development, 23*(4), 162-181. https://mted.merga.net.au/index.php/mted/article/view/635

Kosko, K. W., Ferdig, R. E., & Zolfaghari, M. (2021). Preservice teachers' professional noticing when viewing standard and 360 video. *Journal of Teacher Education, 72*(3), 284-297. https://doi.org/10.1177/0022487120939544

Pytash, K., & Kosko, K. W. (2021). Instruction matters: Pedagogical approaches to increase engagement in a juvenile detention center. *Journal of Education for Students Placed at Risk, 26*(1), 70-85. https://doi.org/10.1080/10824669.2020.1806068

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Kosko, K. W., & Guilford, E. (2018). Making students' mathematical arguments explicit. *Ohio Journal of School Mathematics, 80*, 43-50. https://library.osu.edu/ojs/index.php/OJSM/article/view/6542

Kosko, K. W., & Singh, R. (2018). Elementary children's multiplicative reasoning: Initial validation of a written assessment. *The Mathematics Educator, 27*(1), 3-22. https://eric.ed.gov/?id=EJ1186120

Kosko, K. W., & Singh, R. (2018) What form of mathematics are assessments assessing? The case of multiplication and division in fourth grade NAEP items. *Journal of Mathematics Education at Teachers College, 9*(1), 1-8. https://doi.org/10.7916/jmetc.v9i1.597

Weston, T., Kosko, K. W., Amador, J., & Estapa, A. (2018). Prospective teachers' questioning: Comparing platforms for practice-based teacher education. *Journal of Technology and Teacher Education, 26*(1), 149-172. https://www.learntechlib.org/p/181137/

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de Araujo, Z., Amador, J., Estapa, A., Weston, T., Aming-Attai, R., & Kosko, K. W. (2015). Animating preservice teachers' noticing. *Mathematics Teacher Education and Development, 17*(2), 25-44. https://www.learntechlib.org/p/192622/

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Herbst, P. G., & Kosko, K. W. (2014). Using representations of practice to elicit mathematics teachers' tacit knowledge of practice: A comparison of responses to animations and videos. *Journal of Mathematics Teacher Education, 17*(6), 515-537. https://doi.org/10.1007/s10857-013-9267-y

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Editorials & Commentaries

Kosko, K. W., Ferdig, R. E., & Roche, L. (2021). Editorial: Conceptualizing a shared definition and future directions for extended reality (XR) in teacher education. *Journal of Technology and Teacher Education, 29*(3), 257-278. https://www.learntechlib.org/primary/p/219894/

Book Reviews

Kosko, K. W., & Wilkins, J. L. M. (2016). What mathematics do students know and how is that knowledge changing? Evidence from the National Assessment of Educational Progress [Book Review]. *Teachers College Record*, Date Published: March 10, 2016. https//www.tcrecord.org ID Number: 19574. https://www.tcrecord.org/Content.asp?ContentId=19574

Books

Bieda, K. N., Conner, A., Kosko, K. W., & Staples, M. (Eds.). (2022). *Conceptions and consequences of mathematical argumentation, justification, and proof.* Springer. https://doi.org/10.1007/978-3-030-80008-6

Book & Monograph Chapters

Kosko, K. W., Zolfaghari, M. & Heisler, J. L. (2022). How immersive should virtual field experiences be? A comparison of single and multi-perspective 360 video. In E. Baumgartner, R. Kaplan-Rakowski, R. E. Ferdig, R. Hartshorne, & C. Mouza (Eds.), *A retrospective of teaching, technology, and teacher education during the COVID-19 pandemic* (pp. 101-108). Association for the Advancement of Computing in Education (AACE). https://www.learntechlib.org/primary/p/221522/

Kosko, K. W. (2022). Overview of the elementary level data. In K. N. Bieda, A. Conner, K. W. Kosko, & M. Staples (Eds.), *Conceptions and consequences of mathematical argumentation, justification, and proof* (pp. 13-17). Springer. https://doi.org/10.1007/978-3-030-80008-6_2

Kosko, K. W., & Bieda, K. N. (2022). Conclusion: Considering the consequences of our conceptions of argumentation, justification, and proof. In K. N. Bieda, A. Conner, K. W. Kosko, & M. Staples (Eds.), *Conceptions and consequences of mathematical argumentation, justification, and proof* (pp. 313-323). Springer. http://dx.doi.org/10.1007/978-3-030-80008-6_25

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Miller, M., Yang, Y., Kosko, K., Lu, C. C., Ferdig, R., & Guan, Q. (2020). Empeiría: Powering future education training systems with device agnostic web-vr apps. In J. Y. C. Chen & G. Fragomeni (Eds.), *Virtual, augmented and mixed reality. Industrial and everyday life applications* (pp. 287-300). New York: Springer. https://doi.org/10.1007/978-3-030-49698-2_19

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Kosko, K. W., Sobolewski, L., & Amiruzzaman, M. (2018). Growing in number: Research on mathematical teaching and learning in the online setting. In K. Kennedy, & R. E. Ferdig (Eds.), *Handbook of research on K-12 online and blended learning* 2nd Ed. (pp. 289-302). Pittsburgh, PA: ETC Press. Retrieved at: http://repository.cmu.edu/etcpress/82/

Kosko, K. W. (2016). Going beyond numbers to complicate the given information: Elementary children's mathematical writing. In J. K. Dowdy & Y. Gao (Eds.), *Pumping it up: Literacy activities for the classroom* (pp. 111 – 116). Boston: Sense Publishers.

Herbst, P., Chazan, D., Chieu, V. M., Milewski, A., Kosko, K., & Aaron, W. (2016). Technology-mediated mathematics teacher development: Research on digital pedagogies of practice. In M. L. Niess, S. Driskell, & K. Hollerands (Eds.), *Handbook of Research on Transforming Mathematics Teacher Education in the Digital Age* (pp. 76–105). Hershey, PA: IGI Global. https://doi.org/10.4018/978-1-5225-0120-6.ch004

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Brandt, C. B.. & Kosko, K. (2008). The power of the earth is a circle: Indigenous science education in North America. In K. Tobin & W.M. Roth (Eds.), *The World of Science Education: Handbook of Research in North America* (pp. 389 – 408), Rotterdam: Sense Publishers. https://doi.org/10.1163/9789087907471_027

Published Conference Proceedings (Peer-Reviewed)

Austin, C. K., Heisler, J. L., & Kosko, K. W. (2022). Exploring the relationship between preservice teachers' mathematical noticing and their 360 video viewing. In A. E. Lischka, E. B., Dyer, R. S. Jones, J. N. Lovett, J. Strayer, & S. Drown (Eds.), *Proceeding of the 44[d] annual meeting of the North American Chapter for the Psychology of Mathematics Education* (pp. 1102-1107). Nashville, TN

Cirillo, M., Staples, M., Kosko, K. W., Newton, J., Conner, A. M., & Gomez Marchang, C. N. (2022). Working group report: Conceptions and consequences of what we call argumentation, justification, and proof. In A. E. Lischka, E. B., Dyer, R. S. Jones, J. N. Lovett, J. Strayer, & S. Drown (Eds.), *Proceeding of the 44[d] annual meeting of the North American Chapter for the Psychology of Mathematics Education* (pp. 2097-2105). Nashville, TN

Conner, A. M., Bieda, K., Cirillo, M., Kosko, K. W., & Staples, M. (2022). Working group: Conceptions and consequences of what we call argumentation, justification, and proof. In A. E. Lischka, E. B., Dyer, R. S. Jones, J. N. Lovett, J. Strayer, & S. Drown (Eds.), *Proceeding of the 44rd annual meeting of the North American Chapter for the Psychology of Mathematics Education* (pp. 2106-2108). Nashville, TN

Kosko, K. W., Lenart, C., & Guan, Q. (2022). Comparing expert and novice teachers' noticing with eye-tracking in 360 video. In A. E. Lischka, E. B., Dyer, R. S. Jones, J. N. Lovett, J. Strayer, & S. Drown (Eds.), *Proceeding of the 44rd annual meeting of the North American Chapter for the Psychology of Mathematics Education* (pp. 1915-1916). Nashville, TN

Zolfaghari, M., Kosko, K. W., & Austin, C. K. (2022). Examining the nature of pedagogical content knowledge (PCK) with a validation argument for the PCK-Fractions measure. In A. E. Lischka, E. B., Dyer, R. S. Jones, J. N. Lovett, J. Strayer, & S. Drown (Eds.), *Proceeding of the 44rd annual meeting of the North American Chapter for the Psychology of Mathematics Education* (pp. 730-738). Nashville, TN

McCartney, J. L., Gidden, T. L., Shanholtzer, J., Geething, K., & Kosko, K. W. (2022). A collaborative approach between programs: Improving communication access with deaf people through nursing simulation. In E. H. Othman (Ed.), *Disability at the intersection of history, culture, religion, gender, and health* (pp. 87-100). Marquette University.

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Kosko, K. W., Ferdig, R. E., & Gandolfi, E. (2021). Noticing mathematics from multiple perspectives. In D. Olanoff, K. Johnson, & S. Spitzer (Eds.), *Proceeding of the 43rd annual meeting of the North American Chapter for the Psychology of Mathematics Education* (pp. 1787-1788). Philadelphia, PA.

Kosko, K. W., Yang, Y., Austin, C., Guan, Q., Gandolfi, E., & Go, Z. (2021). Examining preservice teachers' professional noticing of students' mathematics through 360 video and machine learning. In D. Olanoff, K. Johnson, & S. Spitzer (Eds.), *Proceeding of the 43rd annual meeting of the North American Chapter for the Psychology of Mathematics Education* (pp. 1649-1658). Philadelphia, PA.

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Ferdig, R. E., Gandolfi, E., & Kosko, K. W. (2020). Preservice teacher noticing and perceptual capacity with 360 video and VR headsets. In D. Schmidt-Crawford (Ed.), *Proceedings of the Society for Information Technology & Teacher Education* (pp. 724-726), Association for the Advancement of Computing in Education (AACE).

Gandolfi, E., Ferdig, R. E., & Kosko, K. W. (2020). The extended reality presence scale. In D. Schmidt-Crawford (Ed.), *Proceedings of the Society for Information Technology & Teacher Education* (pp. 1011-1017), Association for the Advancement of Computing in Education (AACE).

Kosko, K. W. (2019) Integrating 360 video into a mathematics methods course. In the S. Otten, A. G. Candela, Z. de Araujo, C. Haines, & C. Munter (Eds.), *Proceedings of the 41st annual meeting of the North American Chapter for the Psychology of Mathematics Education* (p. 679). St. Louis, MO: University of Missouri.

Kosko, K. W., Ferdig, R. E., & Zolfaghari, M. (2019) Preservice teachers' noticing in the context of 360 video. In the S. Otten, A. G. Candela, Z. de Araujo, C. Haines, & C. Munter (Eds.), *Proceedings of the 41st annual meeting of the North American Chapter for the Psychology of Mathematics Education* (pp. 1167-1171). St. Louis, MO: University of Missouri.

Benjamin, J., & Kosko, K. W. (2019). Children's conveyed multiplicative meaning across models. In A. Redmond-Sanogo, & J. Cribbs (Eds.), *Proceedings of the 46th annual meeting of the Research Council of Mathematics Learning* (pp. 26-33), Charlotte, NC: RCML.

Kosko, K. W. (2018) Teaching norms for the order of multiplication in third grade. In T.E. Hodges, G. J. Roy, & A. M. Tyminski (Eds.), *Proceedings of the 40th annual meeting of the North American Chapter for the Psychology of Mathematics Education* (p. 1142). Greenville, SC.

Kosko, K. W., & Singh, R. (2018) Third grade textbooks' models for multiplication & division. In T.E. Hodges, G. J. Roy, & A. M. Tyminski (Eds.), *Proceedings of the 40th annual meeting of the North American Chapter for the Psychology of Mathematics Education* (pp. 117-120). Greenville, SC.

Amiruzzaman, M., Kosko, K. W., Amiruzzaman, S. R. (2017). Preservice mathematics teachers' understanding of mode. In E. Galindo & J. Newton (Eds.), *Proceedings of the 39th annual meeting of the North American Chapter for the Psychology of Mathematics Education* (pp. 625-628). Indianapolis, IN.

Conner, A., Kosko, K. W., Staples, M., Cirillo, M., Bieda, K., & Newton, J. (2017). Conceptions and consequences of what we call argumentation, justification, and proof. In E. Galindo & J. Newton (Eds.), *Proceedings of the 39th annual meeting of the North American Chapter for the Psychology of Mathematics Education* (pp. 1464-1473). Indianapolis, IN.

Kosko, K. W. (2017) Effects of a mathematical writing treatment on children's conception of equivalence. In E. Galindo & J. Newton (Eds.), *Proceedings of the 39th annual meeting of the North American Chapter for the Psychology of Mathematics Education* (pp. 768). Indianapolis, IN.

Singh, R., & Kosko, K. W. (2017). Exploring the structure of equivalence items in an assessment of elementary grades. In E. Galindo & J. Newton (Eds.), *Proceedings of the 39th annual meeting of the North American Chapter for the Psychology of Mathematics Education* (pp. 211-218). Indianapolis, IN.

Singh, R., & Kosko, K. W. (2017). Open number sentences: A better way to assess precisely the conception of equivalence. In E. Galindo & J. Newton (Eds.), *Proceedings of the 39th annual meeting of the North American Chapter for the Psychology of Mathematics Education* (pp. 329). Indianapolis, IN.

Amiruzzaman, M., & Kosko, K. W. (2016). Exploring students' understanding of median. In M. B. Wood, E. E. Turner, M. Civil, & J. A. Eli (Eds.), *Proceedings of the 38th annual meeting of the North American Chapter for the Psychology of Mathematics Education* (p. 660-663). Tucson, AZ: The University of Arizona.

Kosko, K. W. (2016). Preservice elementary mathematics teachers' decision making: The questions they ask and the tasks they select. In M. B. Wood, E. E. Turner, M. Civil, & J. A. Eli (Eds.), *Proceedings of the 38th annual meeting of the North American Chapter for the Psychology of Mathematics Education* (p. 1341-1344). Tucson, AZ: The University of Arizona.

Kosko, K. W., & Singh, R. (2016). Children's linguistic and numeric unit coordination. In M. B. Wood, E. E. Turner, M. Civil, & J. A. Eli (Eds.), *Proceedings of the 38th annual meeting of the North American Chapter for the Psychology of Mathematics Education* (p. 605-612). Tucson, AZ: The University of Arizona.

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Staples, M., Newton, J., Kosko, K. W., Conner, A., Cirillo, M., & Bieda, K. (2016). Conceptions and consequences of what we call argumentation, justification, and proof. In M. B. Wood, E. E. Turner, M. Civil, & J. A. Eli (Eds.), *Proceedings of the 38th annual meeting of the North American Chapter for the Psychology of Mathematics Education* (p. 1704-1712). Tucson, AZ: The University of Arizona.

Strachota, S., Hummer, J., Cirillo, M., Newton, J., Kosko, K. W., Staples, M., & Weber, K. (2016). Conceptions of proof, argumentation, and justification. In M. B. Wood, E. E. Turner, M. Civil, & J. A. Eli (Eds.), *Proceedings of the 38th annual meeting of the North American Chapter for the Psychology of Mathematics Education* (p. 712). Tucson, AZ: The University of Arizona.

Kosko, K. W., & Singh, R., (2016). Colligation and unit coordination in mathematical argumentative writing. In Adolphson, K. V. and Olson, T. M. (Eds.), *Proceedings of the 43rd annual meeting of the Research Council of Mathematics Learning* (pp. 18-25), Orlando, FL: RCML.

Cirillo, M., Kosko, K. W., Newton, J., Staples, M., & Weber, K. (2015). Conceptions and consequences of what we call argumentation, justification, and proof. In T. G. Bartell, K. N. Bieda, R. T. Putnam, K. Bradfield, & H. Dominguez (Eds.), *Proceedings of the 37th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 1343-1351), Lansing, MI: Michigan State University.

Singh, R., & Kosko, K. W. (2015). Lost in transition: Difficulties in adapting relational view of equals sign. In T. G. Bartell, K. N. Bieda, R. T. Putnam, K. Bradfield, & H. Dominguez (Eds.), *Proceedings of the 37th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 233-236), Lansing, MI: Michigan State University.

Kosko, K. W. (2014). Using multi-decision scenarios to facilitate teacher knowledge for mathematical questioning. In M. J. Mohr-Schroeder & S. S. Harkness (Eds.), *Proceedings of the 113th annual convention of the School Science and Mathematics Association* (pp. 23-30). Jacksonville, FL: SSMA.

Kosko, K. W., & Gao, Y. (2014). Perceptions and reality: One teacher's use of prompts in mathematical discussions. In P. Liljedahl, S. Oesterle, C. Nicol, & D. Allan (Eds.), *Proceedings of the Joint Meeting of PME 38 and PME-NA 36* (Vol. 4, pp. 41-48), Vancouver, Canada: PME.

Herbst, P., Dimmel, J., Erickson, A. W., Koh, I., & Kosko, K. (2014). Mathematics teachers' recognition of an obligation to the discipline and its role in the justification of instructional actions. In P. Liljedahl, S. Oesterle, C. Nicol, & D. Allan (Eds.), *Proceedings of the Joint Meeting of PME 38 and PME-NA 36* (Vol. 3, pp. 273-280), Vancouver, Canada: PME.

Kosko, K. W. (2013). Teacher questioning: Does MKT and supporting student autonomy predict it? In A. C. Superfine, M. Martinez, G. Larnell, T. Stoelinga, & D. Martin (Eds.), *Proceedings of the 35th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 1057-1060), Chicago, IL: University of Illinois at Chicago.

Herbst, P., Kosko, K. W., & Dimmel, J. (2013). How are geometric proof problems presented? Conceptualizing and measuring teachers' recognition of the diagrammatic register. In A. C. Superfine, M. Martinez, G. Larnell, T. Stoelinga, & D. Martin (Eds.), *Proceedings of the 35th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 179-186), Chicago, IL: University of Illinois at Chicago.

Kosko, K. W., & Herbst, P. (2012). Evaluating teachers' decisions in posing a proof problem. In L. R. Van Zoest, J. J. Lo, & J. L. Kratky (Eds.), *Proceedings of the 34th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 813-820), Kalamazoo, MI: Western Michigan University.

Herbst, P., & Kosko, K. W. (2012). Mathematical knowledge for teaching high school geometry. In L. R. Van Zoest, J. J. Lo, & J. L. Kratky (Eds.), *Proceedings of the 34th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 438-444), Kalamazoo, MI: Western Michigan University.

Kosko, K. W. (2012). Mathematical listening: Self-reports of how students listen and its relation to engagement in mathematical discussion. In L. R. Van Zoest, J. J. Lo, & J. L. Kratky (Eds.), *Proceedings of the 34th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 351-354), Kalamazoo, MI: Western Michigan University.

Kosko, K. W., & Herbst, P. G. (2011). Where's the proof? Proof in U.S. high school geometry content standards. In L. R. Wiest, & T. Lamberg (Eds.), *Proceedings of the 33rd annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 329-337), Reno, NV: University of Nevado, Reno.

Kosko, K. W., & Wilkins, J. L. M. (2010). Communicating quantitative literacy. In P. Brosnan, D. Erchick, & L. Flevares (Eds.), *Proceedings of the 32nd annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 345-353). Columbus, OH: The Ohio State University.

Kosko, K. W. (2010). Student-reported listening in mathematical discussion. In P. Brosnan, D. Erchick, & L. Flevares (Eds.), *Proceedings of the 32nd annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (p. 460). Columbus, OH: The Ohio State University.

Kosko, K. W., & Miyazaki, Y. (2009). Compound effects of mathematics discussion on fifth grade math achievement. In S. L. Swars, D. W. Stinson, & S. Lemons-Smith (Eds.), *Proceedings of the 31st annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 284-287). Atlanta, GA: Georgia State University.

White Papers & Unpublished Reports

Kosko, K. W. (2018). *A history of mathematics education at Kent State University: 1961 to 2017*. Kent, OH: Kent State University. Retrieved from: https://www.researchgate.net/publication/325366848_A_History_of_Mathematics_Education_at_Kent_State_University_1961_to_2017

Ferdig, R.E., & **Kosko, K.W.** (2017). Interactive learning games can significantly improve early math learning and opportunities for cross-grade growth. Report available from: http://zorbitsmath.com/wp-content/uploads/2017/05/Kent-State-Study-Zorbit-Kindergarten.pdf

Staples, M., Newton, J., Kosko, K., Conner, A., Cirillo, M., Bieda, K., Yopp, D., Zaslavsky, O., Hummer, J., Strachota, S., Singh, R., An, T., Going, T., & Zhuang, Y. (2017). *Using artifacts to explore conceptions of consequences of argumentation, justification, and proof* (report). PME-NA Working Group. Retrieved from: https://www.researchgate.net/publication/317267228_White_Paper_Using_Artifacts_to_Explore_Conceptions_and_Consequences_of_Argumentation_Justification_and_Proof

Cirillo, M., Kosko, K. W., Newton, J., Staples, M., Weber, K., Bieda, K., Conner, A., Mejia-Ramos, P., Otten, S., Creager, M., Hummer, J., Singh, R., & Strachota, R. (2016). *Conceptions and consequences of what we call argumentation, justification, and proof* (report). PME-NA Working Group. Retrieved from: https://www.researchgate.net/publication/300088457_White_Paper_2016_Conceptions_and_Consequences_of_What_We_Call_Argumentation_Justification_and_Proof

Ferdig, R.E., Pytash, K.E., Kosko, K.W., Gandolfi, E., & Mathews, R. with Bedesem, P., Harjusola-Webb, S., Sansosti, F., Lu, C.C, Kratcoski, A., Mulvey, B., and Boyle, S. (2016). *Use and perceptions of mobile applications and technologies by those interested in special education*. Kent, OH: Kent State University. Retrieved from http://spedapps.kent.edu/2016survey.pdf.

Blades, C., & Kosko, K. W. (2005). *Appropriate practices in developing field experiences for pre-service teachers.* Unpublished manuscript, Content Quality Network, Winthrop University.

Grants & Funding

Kosko, K. W. [**PI**], Guan, Q., & Ferdig, R. E. (January 2023 – December 2023). *Designing a machine learning tool to assess children's fraction arithmetic*. ASSISTments Foundation [$101,928.67].

Kosko, K. W. [**PI**], Ferdig, R. E., & Guan, Q. (in review). *Studying mathematics teacher educators' pedagogy for video-based representations of practice*. National Science Foundation, DRK-12 [$2,091,196].

Kosko, K. W. [**PI**], Ferdig, R. E., & Guan, Q. (in review). *Studying teachers' mathematical noticing through holographic representations of practice*. National Science Foundation, CORE. [$923,840].

Kosko, K. W. [**PI**], Ferdig, R. E., & Guan, Q. (not funded). *Through the eyes of the teacher: Examining how mathematics teacher noticing corresponds with knowledge and experience*. Spencer Foundation [$50,000].

Kratcoski, A., Campbell, J. R., & Kosko, K. W. [**co-PI**]. (April 2021 – March 2022). *Immersed in deep learning with XR*. Martha Holden Jennings Foundation. [$20,239].

Kosko, K. W. [**PI**]. (August 2021 – June 2022). Holographic representations of practice: Piloting the use of student holograms to explore teachers' mathematical noticing. College of Education, Health and Human Services [$5,000].

Kosko, K. W. [**PI**], Ferdig, R. E., Lu, C. C., Guan, Q. (September 2019 – August 2022). *Design and implementation of immersive representations of practice*. National Science Foundation, DRK-12 (Award #1908159) [$1,488, 759].

Kosko, K. W. [**PI**] (2019). Using 360 video to teach future teachers. Kent State University, University Teaching Council [$10,000].

Kosko, K. W. [**PI**] (2017-2018). Designing a survey of third grade teachers' pedagogy for multiplication and division. Kent State University, University Research Council [$2,500].

Ferdig, R. E., Bedesem, P., Harjusola-Webb, S., Sansosti, F., & Lu, C. C. (2015 – 2016). [**Key Personnel**]. Exploring mobile apps for special education STEAM teaching and learning. AT&T Foundation [$198,432].

Marhefka, D., & Dunlosky, J. (2015 - 2017). [**Key Personnel**]. STTR Phase II: Digital eWriter for The Classroom. National Science Foundation, Division of Industrial Innovation & Partnership (Award # 1534669) [$722,044].

Kosko, K. W. [**PI**], & Ferdig, R. [Co-PI]. (May 2014 – April 2015). *Making mathematics mobile (M³): Collaborating with K-12 schools to explore mathematics apps*. Martha Jennings Holden Foundation [$30,725].

Kosko, K. W. [**PI**] (Aug. 2014 – June 2016). *More than numbers: Developing a mathematical writing intervention for children*. College of Education, Health and Human Services [$5,000].

Invited Talks & Conference Presentations

Kosko, K. W. (April, 2022). *Equity and Classroom Observations* (Panelist). Classroom Observation SIG Business Meeting at the 2022 annual meeting of the American Educational Research Association, San Diego, CA.

Kosko, K. W., & Heisler, J. (March, 2022). *Using 360 media for teaching students & reflecting on practice*. 2022 Learning Innovation Summit, Kent, OH.

Kosko, K. W. (November, 2021). *Teachers' professional noticing of students' mathematics in 360 videos*. Presented to faculty and students in the Department Erziehungswissenschaft at the University of Potsdam, Germany.

Heisler, J., & Kosko, K. W. (October, 2021). *Emerging themes from preservice teacher noticing within 360 video.* Research presentation at the Annual Meeting for the School Science and Mathematics Association, Cincinnati, OH (held virtually).

Kosko, K. W. (February, 2021). *Using length arrays for multiplication and division*. Inspiring educators virtual conference. Hosted by Smokey Hill Education Service Center. Hays, KS.

Austin, C., Heisler, J., & Kosko, K. W. (March, 2020). *Pedagogical content knowledge of teaching multiplication and division*. Poster presented at the Research Council on Mathematics Learning. Las Vegas, NV.

McGalliard, W., & Kosko, K. W. (March, 2020). *Teachers' pedagogical and content knowledge for multiplicative reasoning*. Brief Report presented at the Research Council on Mathematics Learning. Las Vegas, NV.

Zolfaghari, M., & Kosko, K. W. (March, 2020). *Pedagogical content knowledge of teaching fractions*. Poster presented at the Research Council on Mathematics Learning. Las Vegas, NV.

Kosko, K. W. (February, 2020). *Using 360 video in professional training: The case of mathematics teacher education*. Presented to the College of Education, Health, and Human Services. Kent, OH: Kent State University.

Heisler, J., Kosko, K. W., Zolfaghari, M., & Austin, C. (November, 2019). *Augmented, mixed and virtual reality: Professional growth & practice, tools, devices & apps*. Learning Innovations Conference. Kent, OH.

Kosko, K. W. (October, 2019). *Training teachers through extended reality*. Presented at the STEM Entrepreneurship Event. Kent, OH. Viewable at: https://youtu.be/-OqkfUpRYN8

Kosko, K. W., & Benjamin, J. (October, 2019). *ReSilience and Equity in STEAM Latinx Mathematics Education*. Ohio Latino Education Summit. Kent, OH.

Kosko, K. W., & Mulvey, B. K. (June, 2019). *Math and science education pedagogy courses at Kent State University*. Virtual presentation to the faculty at Bahrain Teachers College, University of Bahrain.

Kosko, K. W. (October, 2019). *Where does it come from? Fun history of elementary math 'tricks' and algorithms*. Presented at the 69th annual meeting of the Ohio Council of Teachers of Mathematics, Kalahari, OH.

Benjamin, J., & Kosko, K. W. (February, 2019). *Children's conveyed multiplicative meaning across models*. Brief report presented at the 46th Annual conference of the Research Council on Mathematics Learning, Charlotte, NC.

Kosko, K. W. (October, 2018). *Meaningful fraction multiplication and division*. Presented at the 68th annual meeting of the Ohio Council of Teachers of Mathematics, Akron, OH.

Ferdig, R. E., & Kosko, K. W. (October, 2018). *Selecting meaningful apps for math teaching and learning*. Presented at the 68th annual meeting of the Ohio Council of Teachers of Mathematics, Akron, OH.

Kosko, K. W. (February, 2018). *Justification in elementary students' mathematical argumentative writing*. Research report presented at the 45th annual meeting of the Research Council on Mathematics Learning, Baton Rouge, LA.

Kosko, K. W. (October, 2017). *Using different models to represent multiplication and division in novel ways*. Presented at the 67th annual meeting of the Ohio Council of Teachers of Mathematics, Columbus, OH.

Kosko, K. W. (October, 2016). *Using a tactile number line for K-5 math*. Presented at the 66th annual meeting of the Ohio Council of Teachers of Mathematics, Sandusky, OH.

Kosko, K. W., & Singh, R. (February, 2016). *Colligation and unit coordination in mathematical argumentative writing*. Paper presented at the 43rd annual conference of the Research Council on Mathematics Learning, Orlando, FL.

Kosko, K. W. (October, 2015). *Math writing tasks in early elementary grades*. Presented at the 65th annual meeting of the Ohio Council of Teachers of Mathematics, Cincinnati, OH.

Kosko, K. W. (November, 2014). *Operationalizing the given information: Detailing in children's mathematical writing and its implications for development of proof* (Colloquium talk). Bowling Green State University, Bowling Green, OH.

Kosko, K. W. (October, 2014). *Using multi-decision scenarios to facilitate teacher knowledge for mathematical questioning*. Round table presentation at the Annual Meeting for the School Science and Mathematics Association, Jacksonville, FL.

Estapa, A., Amador, J., Aming-Attai, R., Kosko, K., de Araujo, Z., & Weston, T. (February, 2014). *Noticing in action: An animated look into the noticing of future elementary teachers*. Poster presented at Association of Mathematics Teacher Educators 2014 Conference Presession, Irvine, CA.

Kosko, K., Rogers, K., & Taylor, M. (February, 2014). *What's in a task? How K-16 mathematics teachers attend to the standard for mathematical practice #3*. Poster presented at Association of Mathematics Teacher Educators 2014 Conference Presession, Irvine, CA.

Herbst, P., Aaron, W., & Kosko, K. (2011). *LessonSketch: A set of online tools and resources for research on teacher thinking about and learning from practice*. Paper presented at the 2011 Annual Conference of the School Science and Mathematics Association, Colorado Springs, CO.

Herbst, P., Kosko, K., & Aaron, W. (2011). *Assessing the geometry knowledge of teachers: Perspectives from item design and cognitive interviewing*. Paper presented at the 2011 Annual Conference of the School Science and Mathematics Association, Colorado Springs, CO.

Chieu, V. M., Herbst, P. G., & Kosko, K. W. (2011). *LessonSketch's navigation and communication technologies to support teacher learning in, from, and for practice*. Poster presented at the 3rd Annual Representations of Mathematics Teaching Conference, Ann Arbor, MI.

Herbst, P. G., & Kosko, K. W. (2011). Video and animated representations of teaching: How conducive are each of them to the development of conversations about practice? Paper presented at the 3rd Annual Representations of Mathematics Teaching Conference, Ann Arbor, MI.

Kosko, K. W., & Herbst, P. G. (2011). *Creating an assessment of mathematical knowledge for teaching in geometry*. Poster presented at the 3rd Annual Representations of Mathematics Teaching Conference, Ann Arbor, MI.

Conn, A., Kosko, K. W., & San Pedro, J. M. (2009). *Using pen-pal partnerships to prepare preservice teachers*. Paper presented at the 2009 Annual Conference of the School Science and Mathematics Association, Reno, NV.

Kosko, K. W., & Norton, A. (2009). *How demanding are the NCTM process standards?* Paper presented at the 2009 Annual Conference of the School Science and Mathematics Association, Reno, NV.

Kosko, K. W., Wilkins, J. L. M., & Pitts Bannister, V. (2009). *Writing sophistication in students' answers to algebraic questions*. Poster presented at the Fourth Annual Virginia Tech School of Education Student Association Research Conference, Blacksburg, VA.

Kosko, K. W., & Wilkins, J. L. M. (2008). *Is mathematics discussion effective: Interesting results from a national data set and what they might mean.* Paper presented at the 2008 Annual Conference of the School Science and Mathematics Association, Raleigh-Durham, NC.

Kosko, K. W. (2008). *General educators' inservice training and their self-perceived ability to adapt instruction for special needs students*. Poster presented at the 2008 Annual Conference of the American Council on Rural Special Education, Charleston, WV.

Kosko, K. W. (2005) *Concrete to abstract.* Presented at the 2005 Annual Conference of the South Carolina Council of Teachers of Mathematics, Greenville, SC.

Peer-Reviewed Conference Presentations

Austin, C. K., Heisler, J. L., & Kosko, K. W. (November, 2022). *Exploring the relationship between preservice teachers' mathematical noticing and their 360 video viewing*. Brief Report presented at the 44th annual meeting of the North American Chapter for the Psychology of Mathematics Education. Nashville, TN.

Kosko, K. W., Lenart, C., & Guan, Q. (November, 2022). *Comparing expert and novice teachers' noticing with eye-tracking in 360 video*. Poster presented at the 44th annual meeting of the North American Chapter for the Psychology of Mathematics Education. Nashville, TN.

Zolfaghari, M., Kosko, K. W., Austin, C. K. (November, 2022). *Examining the nature of pedagogical content knowledge (PCK) with a validation argument for the PCK-Fractions measure*. Research Report presented at the 44th annual meeting of the North American Chapter for the Psychology of Mathematics Education. Nashville, TN.

Amador, J., Weston, T., & Kosko, K. W. (July, 2022). *Supporting noticing of students' mathematical thinking through 360 video and prompt scaffolding*. Report presented at the 45th annual meeting of Psychology of Mathematics Education. Alicante, Spain.

Kosko, K. W., & Zolfaghari, M. (February, 2022). *Where and what preservice teachers report they notice when watching 360 videos*. Individual Session presented at the 2021 annual meeting of the Association of Mathematics Teacher Educators, Las Vegas, NV.

Weston, T., Kosko, K. W., & Amador, J. (February, 2022). *Using 360 video in mathematics teacher education methods courses and field experiences*. Individual Session presented at the 2021 annual meeting of the Association of Mathematics Teacher Educators, Las Vegas, NV.

Cirillo, M., Staples, M., Kosko, K. W., Newton J., Conner, A. M., & Gomez, C. N. (October, 2021). *Conceptions and consequences of what we call argumentation, justification, and proof*. Working Group presented at the 43rd annual meeting of the North American Chapter for the Psychology of Mathematics Education. Philadelphia, PA.

Kosko, K. W., Ferdig, R. E., & Gandolfi, E. (October, 2021). *Noticing mathematics from multiple perspectives*. Poster presented at the 43rd annual meeting of the North American Chapter for the Psychology of Mathematics Education. Philadelphia, PA.

Kosko, K. W., Yang, Y., Austin, C., Guan, Q., Gandolfi, E., & Gu, Z. (October, 2021). *Examining preservice teachers' professional noticing of students' mathematics through 360 video and machine learning*. Research Report presented at the 43rd annual meeting of the North American Chapter for the Psychology of Mathematics Education. Philadelphia, PA.

Zolfaghari, M., Heisler, J., & Kosko, K. W. (October, 2021). *Teacher noticing of students' mathematics as student centered*. Brief Report presented at the 43rd annual meeting of the North American Chapter for the Psychology of Mathematics Education. Philadelphia, PA.

Gandolfi, E., Ferdig, R. E., & Kosko, K. W. (July, 2021). *Observing, noticing, and experiencing (ONE): Using extended reality for preservice teacher training and professional development*. Connected Learning Summit, held Virtually.

Kosko, K. W., Ferdig, R. E., Gandolfi, E., & Heisler, J. (April, 2021). *Effect of positionality on preservice teachers' mathematical noticing in 360 video*. Roundtable Session presented at the 2021 annual meeting for the American Educational Research Association (Division C – Section 1c: Mathematics), held Virtually.

Zolfaghari, M., & Kosko, K. W. (February, 2021). *Applying multi-perspective 360 video in noticing assignments*. Individual Session presented at the 2021 annual meeting of the Association of Mathematics Teacher Educators, Orlando, FL.

Austin, C. K., & Kosko, K. W. (June, 2021). *Survey of preservice teachers' pedagogical content knowledge for students' multiplicative reasoning*. Research Report presented at the 42nd annual meeting of the North American Chapter for the Psychology of Mathematics Education. Mazatlán, Sinaloa, Mexico.
Conference rescheduled from October 2020 to June 2021

Kosko, K. W., Heisler, J., & Gandolfi, E. (June, 2021). *Professional teacher noticing as embodied activity*. Poster presented at the 42nd annual meeting of the North American Chapter for the Psychology of Mathematics Education. Mazatlán, Sinaloa, Mexico.
Conference rescheduled from October 2020 to June 2021

Zolfaghari, M., Kosko, K. W., & Heisler, J. (June, 2021). *Exploring preservice teachers' pedagogical content knowledge of teaching fractions*. Brief Report presented at the 42nd annual meeting of the North American Chapter for the Psychology of Mathematics Education. Mazatlán, Sinaloa, Mexico.
Conference rescheduled from October 2020 to June 2021

Miller, M., Yang, Y., Kosko, K., Lu, C. C., Ferdig, R., & Guan, Q. (July, 2020). *Empeiría: Powering future education training systems with device agnostic web-vr apps*. Presented at Human-Computer Interaction International 2020, Copenhagen, Denmark.

Ferdig, R. E., Gandolfi, E., & Kosko, K. W. (April, 2020). *Preservice teacher noticing and perceptual capacity with 360 video and VR headsets*. Poster presented at the Society for Information Technology & Teacher Education, New Orleans, LA.

Gandolfi, E., Ferdig, R. E., & Kosko, K. W. (April, 2020). *The extended reality presence scale*. Paper presented at the Society for Information Technology & Teacher Education, New Orleans, LA.

Kosko, K. W., Weston, T., & Amador, J. (February, 2020). *Incorporating immersive 360 video in mathematics teacher education: Potential and challenges*. Presented at the Annual Meeting of the Association of Mathematics Teacher Educators, Phoenix, AZ.

Kosko, K. W. (November, 2019). *Integrating 360 video into a mathematics methods course*. Poster presented at the 41st annual meeting of the North American Chapter for the Psychology of Mathematics Education, St. Louis, MO.

Kosko, K. W., Ferdig, R. E., & Zolfaghari, M. (November, 2019). *Preservice teachers' noticing in the context of 360 video*. Brief report presented at the 41st annual meeting of the North American Chapter for the Psychology of Mathematics Education, St. Louis, MO.

Kosko, K. W. (November, 2018) *Teaching norms for the order of multiplication in third grade*. Poster presented at the 40th annual meeting of the North American Chapter for the Psychology of Mathematics Education, Greenville, SC.

Kosko, K. W., & Singh, R. (November, 2018) *Third grade textbooks' models for multiplication & division*. Brief report presented at the 40th annual meeting of the North American Chapter for the Psychology of Mathematics Education, Greenville, SC.

Amiruzzaman, M., & Kosko, K. W. (October, 2017). *Preservice mathematics teachers' understanding of mode*. Brief report presented at the 39th annual meeting of the North American Chapter for the Psychology of Mathematics Education, Indianapolis, IN.

Kosko, K. W. (October, 2017) *Effects of a mathematical writing treatment on children's conception of equivalence*. Poster presented at the 39th annual meeting of the North American Chapter for the Psychology of Mathematics Education, Indianapolis, IN.

Singh, R., & Kosko, K. W. (October, 2017). *Exploring the structure of equivalence items in an assessment of elementary grades*. Paper presented at the 39th annual meeting of the North American Chapter for the Psychology of Mathematics Education, Indianapolis, IN.

Kosko, K. W., Weston, T. L., Estapa, A., & Amador, J. (April, 2017). Preservice teachers' approximations of questioning. Roundtable presented at the 2017 annual meeting for the American Educational Research Association (Division K), San Antonio, TX.

Kosko, K. W., & Singh, R. (April, 2017). What are fourth-grade NAEP multiplication items assessing? Poster presented at the 2017 annual meeting for the American Educational Research Association (Special Interest Group – Research in Mathematics Education), San Antonio, TX.

Kosko, K. W. (February, 2017). *Using branching experiences in LessonSketch to open discourse about preservice teachers' pedagogical decisions and justifications*. Poster presented at the annual meeting for the Association of Mathematics Teacher Educators, Orlando, FL.

Amador, J., Estapa, A., Weston, T., & Kosko, K. W. (November, 2016). *Communicating professional noticing through animations as a transformational approximation of practice*. Research report presented at the 38th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, Tuscan, AZ.

Amiruzzaman, M., & Kosko, K. W. (November, 2016). *Exploring students' understanding of median*. Brief research report presented at the 38th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, Tuscan, AZ.

Kosko, K. W. (November, 2016). *Preservice elementary mathematics teachers' decision making: The questions they ask and the tasks they select*. Brief research report presented at the 38th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, Tuscan, AZ.

Kosko, K. W., & Singh, R. (November, 2016). *Children's linguistic and numeric unit coordination*. Research report presented at the 38th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, Tuscan, AZ.

Staples, M., Newton, J., Kosko, K. W., Cirillo, M., Conner, A., & Bieda, K. (October, 2016). *Conceptions and consequences of what we call argumentation, justification, and proof*. Working group at the 38th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, Tuscan, AZ

Singh, R., & Kosko, K. W. (October, 2016). *Elementary students' understanding of equivalence and multiplicative reasoning*. Poster presented at the 38th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, Tuscan, AZ.

Strachota, S., Hummer, J., Cirillo, M., Newton, J., Kosko, K. W., Staples, M., & Weber, K. (October, 2016). *Conceptions of Proof, Argumentation, and Justification*. Poster presented at the 38th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, Tuscan, AZ.

Singh, R., & Kosko, K. W. (July, 2016). *Effect of the structure of the mathematical equivalence problems on students' strategy*. 13th International Congress on Mathematical Education, Hamburg, Germany.

Kosko, K. W., & Singh, R. (April, 2016). *Piloting an assessment of elementary children's unit coordination related to multiplicative reasoning*. Roundtable presented at the 2016 annual meeting for the American Educational Research Association (Special Interest Group – Research in Mathematics Education), Washington D.C.

Kosko, K. W., & Singh, R. (April, 2016). *Children's mathematical argumentative writing and their understanding of equivalence*. Roundtable presented at the 2016 annual meeting for the American Educational Research Association (Special Interest Group – Research in Mathematics Education), Washington D.C.

Cirillo, M., Kosko, K. W., Newton, J., Staples, M., & Weber, K. (November, 2015). *Conceptions and consequences of what we call argumentation, justification, and proof*. Working group at the 37th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, Lansing, MI.

Singh, R., & Kosko, K. W. (November, 2015). *Lost in transition: Difficulties in adapting relational view of equals sign*. Brief report presented at the 37th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, Lansing, MI.

Courtney, S., Kosko, K. W., McMahon, L. (April, 2015). *In the eye of the beholder: Mathematics teacher educators' interpretations of standards for mathematical practice*. Roundtable presentation at the American Educational Research Association (Division K), Chicago, IL.

Kosko, K. W. (April, 2015). *Branching decisions: A means for examining teachers' decision paths for pedagogical choices*. Paper presented in symposium at the American Educational Research Association (Special Interest Group – Research in Mathematics Education), Chicago, IL.

Kosko, K. W., & Rogers, K. C. (April, 2015). *Using barebones mathematical figures to examine elementary and collegiate instructors' conceptions of SMP3*. Round table presentation in roundtable session at the American Educational Research Association (Special Interest Group – Research in Mathematics Education), Chicago, IL.

Kosko, K. W., & Zimmerman, B. (April, 2015). *Emergence of argument in children's mathematical writing*. Paper presented at the annual meeting for the American Educational Research Association (Division C), Chicago, IL.

Estapa, A., Amador, J., de Araujo, Z., Weston, T., Kosko, K., & Aming-Attai, R. (April, 2015). *Noticing transfer across mediums for future elementary teachers*. Paper presented at the National Council of Teachers of Mathematics, Boston, MA.

Amador, J., Estapa, A., Weston, T., Kosko, K., de Araujo, Z., & Aming-Attai, R. (February, 2015). *Noticing exposed through preservice teachers' video animations*. Presented at the Annual Meeting of the Association of Mathematics Teacher Educators, Orlando, FL.

Courtney, S., & Kosko, K. (February, 2015). *Forecasting the impact and lifespan of the common core standards for mathematical practice*. Presented at the Annual Meeting of the Association of Mathematics Teacher Educators, Orlando, FL.

Kosko, K. W., & Gao, Y. (July, 2014). *Perceptions and reality: One teacher's use of prompts in mathematical discussions*. Research report presented at the combined meeting for the 38th annual meeting of the International Group for the Psychology of Mathematics Education and 36th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, Vancouver, Canada.

Erickson, A. W., Herbst, P., Dimmel, J., Kosko, K., & Koh, I. (July, 2014). *Mathematics teachers' recognition of an obligation to the discipline and its role in the justification of instructional actions*. Research report presented at the combined meeting for the 38th annual meeting of the International Group for the Psychology of Mathematics Education and 36th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, Vancouver, Canada.

Kosko, K. W. (May, 2014). *Mathematical writing: An exploratory study of one concrete operational child's mathematical descriptions*. Research report presented at the 44th Annual Meeting of the Jean Piaget Society, San Francisco, CA.

Kosko, K. W. (November, 2013). *Teacher questioning: Does MKT and supporting student autonomy predict it?* Brief research report presented at the 35th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, Chicago, IL.

Herbst, P. G., Kosko, K. W., & Dimmel, J. K. (November, 2013). *How are geometric proof problems presented? Conceptualizing and measuring teachers' recognition of the diagrammatic register*? Research report presented at the 35th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, Chicago, IL.

Kosko, K. W., & Herbst, P. G. (April, 2013). *Opening opportunities for discourse in the face of norms for posing proof problems*. Round table paper presented at the 2013 Annual Meeting of the American Educational Research Association, Division C, San Francisco, CA.

Kosko, K. W., Rougee, A., & Herbst, P. G. (April, 2013). *What actions do teachers envision when asked to facilitate mathematical argumentation in the classroom?* Round table paper presented at the 2013 Annual Meeting of the American Educational Research Association, Division C, San Francisco, CA.

Herbst, P., Chazan, D., Kosko, K. W., Aaron, W., Dimmel, J., Buchbinder, O., & Erickson, A. W. (April, 2013). *Methods to study decisions in mathematics teaching*. Research symposium presented at the National Council of Teachers of Mathematics Research Presession, Denver, CO.

Kosko, K. W., & Chieu, V. M. (April, 2013). *Piloting online professional development for facilitating the Common Core*. Interactive paper presented at the National Council of Teachers of Mathematics Research Presession, Denver, CO.

Kosko, K. W., & Herbst, P. (October, 2012). *Evaluating teachers' decisions in posing a proof problem*. Research report presented at the 34th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, Kalamazoo, MI.

Herbst, P., & Kosko, K. W. (October, 2012). *Mathematical knowledge for teaching high school geometry*. Research report presented at the 34th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, Kalamazoo, MI.

Kosko, K. W. (October, 2012). *Mathematical listening: Self-reports of how students listen and its relation to engagement in mathematical discussion*. Research brief presented at the 34th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, Kalamazoo, MI.

Herbst, P. G., & Kosko, K. W. (April, 2012). *Using cases as triggers for teachers' thinking about practice: A comparison of responses to animations and videos*. Round table paper presented at the 2012 Annual Meeting of the American Educational Research Association, Division C, Vancouver, Canada.

Kosko, K. W., & Herbst, P. G. (April, 2012). *Teachers' notions of facilitating mathematical discussion and the influence of professional obligations for mathematics teaching*. Poster presented at the 2012 Annual Meeting of the American Educational Research Association, Division K, Vancouver, Canada.

Kosko, K. W., & Herbst, P. G. (2011). *Where's the proof? Proof in U.S. high school geometry content standards*. Paper presented at the 33rd Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education. Reno, NV.

Kosko, K. W. (2011). *Self-regulation of mathematical writing*. Poster presented at the 2011 Annual Meeting of the American Educational Research Association, SIG – Research in Mathematics Education, New Orleans, LA.

Herbst, P., Aaron, W., Chieu, V. M., Dimmel, J., Erickson, A., Kosko, K. W., Rougee, A. (2011). *Learning about the work of doing mathematics from geometric problem solving*. Presented concurrently at the 2011 Math In Action Conference and 2011 Conversations among Colleagues Conference. Grand Valley State University, Grand Rapids, MI.

Kosko, K. W., & Wilkins, J. L. M. (2010). *Communicating quantitative literacy*. Research Brief presented at the 32nd Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education. Columbus, OH.

Kosko, K. W. (2010). *Student-reported listening in mathematical discussion*. Poster presented at the 32nd Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education. Columbus, OH.

Kosko, K. W., & Wilkins, J. L. M. (2010). *Students' quality of mathematical discussion and their self-determination in mathematics*. Round Table presentation at the 2010 Annual Meeting of the American Educational Research Association, SIG – Research in Mathematics Education, Denver, CO.

Kosko, K. W., & Miyazaki, Y. (2009). *Compound effects of mathematics discussion on fifth grade math achievement.* Paper presented at the 31st Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, Atlanta, GA.

Kosko, K. W. (2009). *Discussion and writing in mathematics: How it works and how to make it work.* Presented at the 2009 Annual Meeting of the National Council of Teachers of Mathematics, Washington, D.C.

Austin, J., Cameron, T., Glass, M., Kosko, K., Marsh, F., Abdelmagid, R., & Burge, P. (2008) *The first semester transition experience of full-time professionals transitioning to doctoral students in education.* Paper presented at the 2008 Annual Conference of the Eastern Education Research Association, Hilton Head, SC.

Kosko, K. W. (2007) *Beliefs about inclusion in secondary and middle level mathematics classrooms: A replication study.* Paper presented at the 2007 Annual Conference of the Eastern Education Research Association, Clearwater, FL.

TEACHING & INSTRUCTION

Kent State University

ADED 42292 – Mathematics Field Work Practicum

- Taught: Fall 2013.

CI 87791 – Doctoral Seminar in Mathematics Education

- Taught: Each semester between Fall 2014 – Spring 2018.

CI 67095/77095 – Special Topics: Learning Theories in Mathematics Education

- Taught: Spring 2015.

CI 67226/77226 – Improving Mathematics Instruction in Middle Childhood
Kent State University

- Taught: Spring 2014.

EVAL 88795 – Special Topics: Mixed Methods

- Taught: Spring 2018.

Virginia Tech

EDCI 4754/5754—Internship in Education: Mathematics
- Co-taught course: Spring 2007, 2008, and 2009.

PROFFESIONAL SERVICE

Journal Reviewer

Completed review(s) within the past five (5) years.
This list is complete to the best of my knowledge.

American Educational Research Journal (AERJ)
Educational Researcher
Educational Studies in Mathematics (ESM)
International Electronic Journal of Mathematics Education (IEJME)
Investigations in Mathematics Learning (IML)
Journal of Mathematical Behavior (JMB)
Journal of Mathematics Teacher Education (JMTE)
Journal of Research in Mathematics Education (JRME)
Journal of Teacher Education (JTE)
Journal of Teaching and Teacher Education (JTTE)
Journal of Technology and Teacher Education (JTATE)
Mathematical Thinking and Learning (MTL)
Ohio Journal of School Mathematics (OJSM)
Studies in Educational Evaluation (SEE)
School Science & Mathematics Journal (SSMJ)

Conference Proposals Reviewer

2023 Association of Mathematics Teacher Educators (AMTE)
2022 Psychology of Mathematics Education – North America (PME-NA)
2022 Research Council on Mathematics Learning (proceedings reviewer)
2021 Psychology of Mathematics Education – North America (PME-NA)
2021 Research Council on Mathematics Learning (proceedings reviewer)
2020 Research Council on Mathematics Learning (proceedings reviewer)
2019 Psychology of Mathematics Education – North America (PME-NA)
2019 Research Council on Mathematics Learning
2018 American Educational Research Association
Division C – Learning & Instruction, Section 1c: Mathematics.
2018 Psychology of Mathematics Education – North America (PME-NA)
2017 American Educational Research Association
Division C – Learning & Instruction, Section 1c: Mathematics.
2017 Psychology of Mathematics Education – North America (PME-NA)
2017 Research Council on Mathematics Learning (proceedings reviewer)
2016 Psychology of Mathematics Education – North America (PME-NA)
2016 Research Council on Mathematics Learning (proceedings reviewer)
2015 Psychology of Mathematics Education – North America (PME-NA)

2015 American Educational Research Association
Special Interest Group: Research in Mathematics Education.
2015 National Council of Teachers of Mathematics – Research Conference
2015 Research Council on Mathematics Learning (proceedings reviewer)
2014 American Educational Research Association
Special Interest Group: Research in Mathematics Education.
2014 Research Council on Mathematics Learning (proceedings reviewer)
2013 Psychology of Mathematics Education – North America (PME-NA)
2013 American Educational Research Association
Division C – Learning & Instruction, Section 1c: Mathematics.
Special Interest Group: Research in Mathematics Education.
2012 Psychology of Mathematics Education – North America (PME-NA)
2012 Association of Mathematics Teacher Educators (AMTE)
2012 American Educational Research Association
Division C – Learning & Instruction, Section 1c: Mathematics.
Special Interest Group: Research in Mathematics Education.
2011 Psychology of Mathematics Education – North America (PME-NA)
2010 Psychology of Mathematics Education – North America (PME-NA)
2009 American Educational Research Association
Special Interest Group: Research in Mathematics Education (Graduate Reviewer).
2006 Eastern Educational Research Association (EERA)

Dissertation and Thesis Committees

Students listed without titles have passed their comprehensive exams and are writing their dissertation proposal. Other students listed as 'in progress' have passed their dissertation proposal defense.

Chair or Co-Chair

Austin, C. K. (in progress). *The relationship between introductory tertiary mathematics students' mathematical attitude, motivation, and their reported use of automatic online feedback* (doctoral dissertation). Kent, OH: Kent State University.

- Co-Chair of Committee.

Zolfaghari, M. (in progress). *Elementary grade students' demonstrated fragmenting with visual static models* (doctoral dissertation). Kent, OH: Kent State University.

- Committee Chair.

Benjamin, J. (2022). *And yet, she persists: An investigation of the effects of stereotype threat on women's construction of their mathematical and gender identities* (doctoral dissertation). Kent, OH: Kent State University.

- Co-Chair of Committee.

Krasniqi, F. (2022). *Curriculum traditions in teacher preparation: A mixed methods study of Kosovo teacher educators' views on effective teacher preparation* (doctoral dissertation). Kent, OH: Kent State University.

- Committee Chair.

Amiruzzaman, M. (2019). *Use of Twitter among college students and its impact of their academics* (doctoral dissertation). Kent, OH: Kent State University.

- Co-Chair of Committee.

Alexander, A. (2019). *The perceptions of alignment between advanced placement Calculus AB and college Calculus I: A mixed methods study of instructional strategies, curriculum, and assessment* (doctoral dissertation). Kent, OH: Kent State University.

- Committee Chair.

Singh, R. (2019). *Role of structure of equations in identifying students' conception of equivalence* (doctoral dissertation). Kent, OH: Kent State University.

- Committee Chair.

Muckridge, N. (2017). Adult developmental learners' knowledge of fraction addition and subtraction (doctoral dissertation). Kent, OH: Kent State University.

- Co-Chair of Committee.

Sobolewski-McMahon, L. (2017). *Middle school mathematics teachers' perceptions of the Common Core State Standards for Mathematical Practice* (doctoral dissertation). Kent, OH: Kent State University.

- Co-Chair of Committee.

Amiruzzaman, M. (December, 2016). Exploring preservice teachers' understanding of measures of central tendency (doctoral dissertation). Kent, OH: Kent State University.

- Co-Chair of Committee.

Trehan, D. M. (December, 2015). *The impact of concept mapping as a learning tool on student perceptions of and experiences with introductory statistics* (doctoral dissertation). Kent, OH: Kent State University.

- Co-Chair of Committee.

<u>Member of Committee</u>

Glasener, K. (in progress).

Wiedenfeld, L. (in progress).

Widmer, F. (2021). *A sequential explanatory mixed methods research study of teachers' perceptions and perspectives of high-quality movement in the classroom* (doctoral dissertation. Kent, OH: Kent State University.

Baumgartner, E. E. (2020). *The impact of virtual reality and 360-degree video on spatial reasoning skills in elementary students* (doctoral dissertation). Kent, OH: Kent State University.

Elsharif, R. (2020). *The average of some irreducible character degrees* (doctoral dissertation). Kent, OH: Kent State University.

Montgomery, M. L. (2020). *Educational vision in the 21st century: A quantitative study of the effect of superintendent vision on digital learning* (doctoral dissertation). Kent, OH: Kent State University.

Pang, X. (2020). *On the nature of academic rankings: The relationship between the academic rankings' quality of education and the quality of curriculum in Ph.D. C&I programs in America* (doctoral dissertation). Kent, OH: Kent State University.

Bissler, M. W. (2017). *Character degree graphs of solvable groups* (doctoral dissertation). Kent, OH: Kent State University.

Crawford, A. (2017). *Self-determination theory and middle school mathematics teachers: Understanding the motivation to attain professional development* (doctoral dissertation). Kent, OH: Kent State University.

Eliustaoglu, E. (May, 2016). *Investigation of fraction schemes and models as a means to understand how sixth grade students make sense of fractions* (Masters thesis). Kent, OH: Kent State University.

Stoyle, K. (May, 2016). *Supporting mathematical explanation, justification, and argumentation through multimedia* (doctoral dissertation). Kent, OH: Kent State University.

Brennan, C. R. (May, 2015). *Implementation of authentic online investigative activities in ratio and proportion for adult learners* (doctoral dissertation). Kent, OH: Kent State University.

Stoll, J. (2014). *Development of a survey instrument to gauge preschool teachers' knowledge, behaviors and attitudes regarding the National Council of Teachers of Mathematics (NCTM) process standards* (doctoral dissertation). Kent, OH: Kent State University.

<u>Graduate Faculty Representative</u>

Brannon, M. E. (2022). *Exploring the impact of design thinking on creativity in preservice teachers* (doctoral dissertation). Kent, OH: Kent State University.

Giannamore, K. (2020). *Aligning the necessary competencies for training and evaluating online teachers in higher education with Clickering and Gamson's seven principles for effective undergraduate teaching: A Q methodology study* (doctoral dissertation). Kent, OH: Kent State University.

Raber, J. (2020). *Analysis of motivation, situational interest, and augmented reality* (doctoral dissertation). Kent, OH: Kent State University.

Roginski, D. (2020). *From problem to possibilities: Shifts in early childhood preservice teachers' noticing of K-1 writers* (doctoral dissertation). Kent OH: Kent State University.

McFarland, M. R. (2017). *Student pilot aptitude as an indicator of success in a Part 141 collegiate flight training program* (doctoral dissertation). Kent, OH: Kent State University.

Remark, L. N. (2017). *Portraits of Developmental Reading Students: A Case Study Exploration* (doctoral dissertation). Kent, OH: Kent State University.

Other Professional Service

University Service:

2021 – present	Research and Sponsored Programs Advisory Council
2014 – present	University Council on Technology
2015 – 2016	Student Survey of Instruction, Review Committee Advisory Board
2015 – 2016	Clicker Sub-committee (*Ad hoc for University Council on Technology*)
2015 – 2016	Scantron Sub-committee (*Ad hoc for University Council on Technology*)

College (EHHS) Service:

2020 – present	Technology Advisory Committee
2014 – present	Graduate Appeals Committee
2021 – 2023	College Curriculum Committee
2020 – 2021	Honors and Awards Committee • Chair of Committee
2018 – 2020	College Advisory Council (CAC)
2018 – 2019	Honors and Awards Committee
2018	Value-Added Module Recommendations and Design • Provided recommendations for a two-part module for teacher candidates across all programs, related to Value-Added Measures. This included writing the second part module focusing on interpreting value-added reports.
2014 – 2016	Technology Advisory Council
2014 – 2015	Search Committee: Early Childhood Mathematics Education Tenure-Track Position • Co-Chair of Committee
2013 – 2014	Search Committee: Special Education Early Childhood Tenure-Track Position • External Member

School (TLCS) Service:

2021 – 2023	School Curriculum Committee
2020 – 2021	Scholarship Committee
2019	Online Master's Degree Implementation [*Ad hoc Committee for Curriculum & Instruction*] • Chair

2017 – 2020 Faculty Advisory Committee
2017 – 2018 Search Committee: Educational Technology Tenure-Track Position
- Member

2015 – 2016 Early Childhood Equity [*Ad hoc Committee for Early Childhood*]
2015 – 2016 Online Master's Degree Option [*Ad hoc Committee for Curriculum & Instruction*]
- Chair of Committee

Affiliation and Membership

2012 – present Center for Math and Science Education
2012 – present Early Childhood Education Program
2012 – present Curriculum and Instruction Program

State Level Service

2018 – present Ohio Department of Education
Grade 5 Mathematics Content Advisory Committee
2018 Ohio Department of Education
External Review of Ohio Extended Mathematics Learning Standards

National and International Service

2023 – 2024 Psychology of Mathematics Education – North America
Local Organizing Committee Chair for PME-NA 46 in Cleveland, OH
2020 – 2023 National Council of Teachers of Mathematics (NCTM)
Journal for Research in Mathematics Education (JRME) Committee
Committee Member (2020 – 2022)
Committee Chair (2022 – 2023)
2020 National Science Foundation Review Panelist – Washington, D.C.
2019 – 2022 Psychology of Mathematics Education – North America
Steering Committee Member (2019 – 2021)
Steering Committee Chair (2021 – 2022)
2019 – 2021 Investigations in Mathematics Learning
Editorial Board Member
2018 Psychology of Mathematics Education Annual Meeting
Strand Leader for Student Learning & Related Factors
2015 – present Journal of Technology and Teacher Education
Editorial Review Board Member
2015 – 2017 American Educational Research Association
Section Chair for Division C, Section 1c: Mathematics
2015 National Science Foundation Review Panelist – Washington, D.C.
2014 National Science Foundation Review Panelist – Washington, D.C.
2014 Jean Piaget Society Annual Meeting – Session Chair
2014 Psychology of Mathematics Education Annual Meeting – Session Chair

Professional Organizations (current)

American Association of University Professors (AAUP)
National Council of Teachers of Mathematics (NCTM)
Ohio Council of Teachers of Mathematics (OCTM)
Ohio Mathematics Education Leadership Council (OMELC)
Psychology of Mathematics Education – North America (PME-NA)
Research Council on Mathematics Learning (RCML)
School Science and Mathematics Association (SSMA)

PROFESSIONAL EXPERIENCE

Associate Professor, Mathematics Education August 2018 – present
Kent State University

Assistant Professor, Mathematics Education August 2012 – July 2018
Kent State University

Post Doctoral Research Fellow July 2010 – August 2012
University of Michigan
NSF Grant: Thought Experiments in Mathematics Teaching II
Principal Investigator: Patricio Herbst

Graduate Research Assistant August 2006 – June 2010
Virginia Tech
Mentor/Advisor: Jesse L. M. Wilkins

Teacher Education Supervisor: Secondary Mathematics August 2006 – May 2009
Virginia Tech
Mentor/Advisor: Vanessa R. Pitts Bannister

Teacher August 2002 – May 2006
York County District #3. Rock Hill, SC

Teacher Mentor 2005 – 2006
Winthrop University

Research Assistant 2005
South Carolina Middle School Association
Content Quality Network

HONORS & AWARDS

2020	Kent State University President's Faculty Excellence Award
2019	Kent State University Outstanding New Faculty Research and Scholarship Award
2019	Kent State University – College of Education, Health, & Human Services Outstanding Early Career Researcher Award
2019	Kent State University – College of Education, Health, & Human Services Spring 2019 Featured Researcher
2015 – 2016	Kent State University – Teaching Scholar.
2013	STaR Fellow (Service, Teaching and Research Program – 4th Cohort).
2010	Virginia Tech – School of Education, Outstanding Graduate Student Award.
1998	Eagle Scout.