The Mathematics Enthusiast

Volume 11
Number 2 *Number 2*

Article 10

8-2014

Appendix: References by Content Area

Follow this and additional works at: <https://scholarworks.umt.edu/tme>

Part of the [Mathematics Commons](#)

Let us know how access to this document benefits you.

Recommended Citation

(2014) "Appendix: References by Content Area," *The Mathematics Enthusiast*. Vol. 11 : No. 2 , Article 10.

DOI: <https://doi.org/10.54870/1551-3440.1309>

Available at: <https://scholarworks.umt.edu/tme/vol11/iss2/10>

This Additional Information is brought to you for free and open access by ScholarWorks at University of Montana. It has been accepted for inclusion in *The Mathematics Enthusiast* by an authorized editor of ScholarWorks at University of Montana. For more information, please contact scholarworks@mso.umt.edu.

APPENDIX

References by Content Area

Whole Numbers and Operations

- Chapman, O. (2007). Facilitating preservice teachers' development of mathematics knowledge for teaching arithmetic operations. *Journal of Mathematics Teacher Education*, 10, 341–349.
- Crespo, S., & Nicol, C. (2006). Challenging preservice teachers' mathematical understanding: The case of division by zero. *School Science and Mathematics*, 106(2), 84–97.
- Feldman, Z. (2012). *Pre-service elementary teachers' developing understanding of elementary number theory*. Paper presented at the 34th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, Kalamazoo, MI.
- Glidden, P. L. (2008). Prospective elementary teachers' understanding of order of operations. *School Science and Mathematics*, 108(4), 130–136.
- Graeber, A. O., Tirosh, D., & Glover, R. (1989). Preservice teachers' misconceptions in solving verbal problems in multiplication and division. *Journal for Research in Mathematics Education*, 20(1), 95–102.
- Green, M., Piel, J. A., & Flowers, C. (2008). Reversing education majors' arithmetic misconceptions with short-term instruction using manipulatives. *Journal of Educational Research*, 101(4), 234–242.
- Harkness, S. S., & Thomas, J. (2008). Reflections on “multiplication as original sin”: The implications of using a case to help preservice teachers understand invented algorithms. *Journal of Mathematical Behavior*, 27(2), 128–137.
- Kaasila, R., Pehkonen, E., & Hellinen, A. (2010). Finnish pre-service teachers' and upper secondary students' understanding of division and reasoning strategies used. *Educational Studies in Mathematics*, 73(3), 247–261.
- Liljedahl, P., Chernoff, E., & Zazkis, R. (2007). Interweaving mathematics and pedagogy in task design: A tale of one task. *Journal of Mathematics Teacher Education*, 10(4–6), 239–249.
- Lo, J.-J., Grant, T. J., & Flowers, J. (2008). Challenges in deepening prospective teachers' understanding of multiplication through justification. *Journal of Mathematics Teacher Education*, 11(1), 5–22.
- McClain, K. (2003). Supporting preservice teachers' understanding of place value and multidigit arithmetic. *Mathematical Thinking and Learning*, 5(4), 281–306.

- Menon, R. (2003). Exploring preservice teachers understanding of two-digit multiplication. *The International Journal for Mathematics Teaching and Learning*. Retrieved from <http://www.cimt.plymouth.ac.uk/journal/ramakrishnanmenon.pdf>
- Menon, R. (2004). Preservice teachers' number sense. *Focus on Learning Problems in Mathematics*, 26(2), 49–61.
- Menon, R. (2009). Preservice teachers' subject matter knowledge of mathematics. *The International Journal for Mathematics Teaching and Learning*. Retrieved from <http://www.cimt.plymouth.ac.uk/journal/menon.pdf>
- Simon, M. (1993). Prospective elementary teachers' knowledge of division. *Journal for Research in Mathematics Education*, 24(3), 233–254.
- Thanheiser, E. (2009). Preservice elementary school teachers' conceptions of multidigit whole numbers. *Journal for Research in Mathematics Education*, 40(3), 251–281.
- Thanheiser, E. (2010). Investigating further preservice teachers' conceptions of multidigit whole numbers: Refining a framework. *Educational Studies in Mathematics*, 75(3), 241–251.
- Thanheiser, E. (2012). Understanding multidigit whole numbers: The role of knowledge pieces, connections, and context in understanding regrouping 3+ digit numbers. *Journal of Mathematical Behavior*, 31(2), 220–234.
- Tirosh, D., & Graeber, A. O. (1989). Preservice elementary teachers' explicit beliefs about multiplication and division. *Educational Studies in Mathematics*, 20(1), 79–96.
- Tirosh, D., & Graeber, A. O. (1991). The effect of problem type and common misconceptions on preservice elementary teachers' thinking about division. *School Science and Mathematics*, 91(4), 157–163.
- Tsao, Y.-L. (2005). The number sense of preservice elementary school teachers. *College Student Journal*, 39(4), 647–679.
- Vest, F. (1978). Disposition of pre-service elementary teachers related to measurement and partition division. *School Science and Mathematics*, 78, 335–339.
- Wheeler, M. M., & Feghali, I. (1983). Much ado about nothing: Preservice elementary school teachers' concept of zero. *Journal for Research in Mathematics Education*, 14(3), 147–155.
- Whitacre, I., & Nickerson, S. D. (2012). *Prospective elementary teachers' justifications for their nonstandard mental computation strategies*. Paper presented at the 34th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, Reno, NV.
- Yackel, E., Underwood, D., & Elias, N. (2007). Mathematical tasks designed to foster a reconceptualized view of early arithmetic. *Journal of Mathematics Teacher Education*, 10(4–6), 351–367.
- Yang, D.-C. (2007). Investigating the strategies used by pre-service teachers in Taiwan when responding to number sense questions. *School Science and Mathematics*, 107(7), 293–301.

- Zazkis, R. (2005). Representing numbers: Primes and irrational. *International Journal of Mathematical Education in Science and Technology*, 36, 207–218.
- Zazkis, R., & Campbell, S. (1996). Divisibility and multiplicative structure of natural numbers: Preservice teachers' understanding. *Journal for Research in Mathematics Education*, 27, 540–563.

Fractions

- Ball, D. L. (1990a). The mathematical understandings that prospective teachers bring to teacher education. *Elementary School Journal*, 90, 449–466.
- Ball, D. L. (1990b). Prospective elementary and secondary teachers' understanding of division. *Journal for Research in Mathematics Education*, 21(2), 132–144.
- Behr, M. J., Khoury, H. A., Harel, G., Post, T., & Lesh, R. (1997). Conceptual units analysis of preservice elementary school teachers' strategies on a rational-number-as-operator task. *Journal for Research in Mathematics Education*, 28(1), 48–69.
- Borko, H., Eisenhart, M., Brown, C. A., Underhill, R. G., Jones, D., & Agard, P. C. (1992). Learning to teach hard mathematics: Do novice teachers and their instructors give up too easily? *Journal for Research in Mathematics Education*, 23(3), 194–222.
- Caglayan, G., & Olive, J. (2011). Referential commutativity: Preservice K-8 teachers' visualization of fraction operations using pattern block. 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. 303–311). Reno, NV: University of Nevada, Reno.
- Chinnappan, M. (2000). Preservice teachers' understanding and representation of fractions in a JavaBars environment. *Mathematics Education Research Journal*, 12(3), 234–253.
- Domoney, B. (2002). Student teachers' understanding of rational number: Part-whole and numerical constructs. *Research in Mathematics Education*, 4(1), 53–67.
- Eisenhart, M., Borko, H., Underhill, R., Brown, C., Jones, D., & Agard, P. (1993). Conceptual knowledge falls through the cracks: Complexities of learning to teach mathematics for understanding. *Journal for Research in Mathematics Education*, 24(1), 8–40.
- Graeber, A. O., Tirosh, D., & Glover, R. (1989). Preservice teachers' misconceptions in solving verbal problems in multiplication and division. *Journal for Research in Mathematics Education*, 20(1), 95–102.
- Green, M., Piel, J. A., & Flowers, C. (2008). Reversing education majors' arithmetic misconceptions with short-term instruction using manipulative. *The Journal of Educational Research*, 101(4), 234–242.
- Harvey, R. (2012). Stretching student teachers' understanding of fractions. *Mathematics Education Research Journal*, 24, 493–511.

- Ho, S. Y., & Lai, M. Y. (2012). Pre-service teachers' specialized content knowledge on multiplication of fractions. In T. Y. Tso (Ed.), *Proceedings of the 36th Conference of the International Group for the Psychology of Mathematics Education* (Vol. 2, pp. 291–298). Taipei, Taiwan: PME.
- Isiksal, M., & Cakiroglu, E. (2011). The nature of prospective mathematics teachers' pedagogical content knowledge: The case of multiplication of fractions. *Journal of Mathematics Teacher Education*, 14, 213–230.
- Kajander, A., & Holm, J. (2011). Mathematics for teaching and learning: Developing teachers' conceptual understanding of elementary mathematics. 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. 1664–1672). Reno, NV: University of Nevada, Reno.
- Khoury, H. A., & Zazkis, R. (1994). On fraction and non-standard representations: Pre-service teachers' conceptions. *Educational Studies in Mathematics*, 27, 191–204.
- Li, Y., & Kulm, G. (2008). Knowledge and confidence of pre-service mathematics teachers: The case of fraction division. *ZDM Mathematics Education*, 40, 833–843.
- Lin, C. (2010). Web-based instruction on preservice teachers' knowledge of fraction operations. *School Science and Mathematics*, 110(2), 59–70.
- Lin, C.-Y., Becker, J., Byun, M.-R., Yang, D.-C., & Huang, T.-W. (2013). Preservice teachers' conceptual and procedural knowledge of fraction operations: A comparative study of the United States and Taiwan. *School Science and Mathematics*, 113(1), 41–51.
- Lo, J.-J., & Grant, T. (2012). Prospective elementary teachers' conceptions of fractional units. In T. Y. Tso (Ed.), *Proceedings of the 36th Conference of the International Group for the Psychology of Mathematics Education* (Vol. 3., pp. 169–176). Taipei, Taiwan: PME.
- Lo, J.-J., & Luo, F. (2012). Prospective elementary teachers' knowledge of fraction division. *Journal of Mathematics Teacher Education*, 15, 481–500.
- Luo, F. (2009). Evaluating the effectiveness and insights of pre-service elementary teachers' abilities to construct word problems for fraction. *Journal of Mathematics Education*, 2, 83–98.
- Luo, F., Lo, J., & Leu, Y. (2011). Fundamental fraction knowledge of preservice elementary teachers: A cross-national study in the United States and Taiwan. *School Science and Mathematics*, 111, 164–177.
- McAllister, C. J., & Beaver, C. (2012). Identification of error types in preservice teachers' attempt to create fraction story problems for specified operations. *School Science and Mathematics*, 112(2), 88–98.
- Menon, R. (2009). Preservice teachers' subject matter knowledge of mathematics. *International Journal for Mathematics Teaching and Learning*. Retrieved from <http://www.cimt.plymouth.ac.uk/journal/menon.pdf>

- Mochon, S., & Escobar, M. H. (2011). Mathematical knowledge for teaching of student teachers and its enhancement through a special final course. 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. 487–495). Reno, NV: University of Nevada, Reno.
- Muir, T., & Livy, S. (2012, December 5). What do they know? A comparison of pre-service teachers' and in-service teachers' decimal mathematical content knowledge. *International Journal for Mathematics Teaching and Learning*. Retrieved from <http://www.cimt.plymouth.ac.uk/journal/muir2.pdf>
- Newton, K. J. (2008). An extensive analysis of preservice elementary teachers' knowledge of fractions. *American Educational Research Journal*, 45(4), 1080–1110.
- Rizvi, N. F. (2004). Prospective teachers' ability to pose word problems. *International Journal for Mathematics Teaching and Learning*. Retrieved from <http://www.cimt.plymouth.ac.uk/journal/rizvi.pdf>
- Rizvi, N. F., & Lawson, M. J. (2007). Prospective teachers' knowledge: Concept of division. *International Education Journal*, 8(2), 377–392.
- Rosli, R., Gonzalez, E. G., & Capraro, M. M. (2011). A case study of three preservice teachers on the units and unitizing of fractions. 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. 1682–1689). Reno, NV: University of Nevada, Reno.
- Simon, M. A. (1993). Prospective elementary teachers' knowledge of division. *Journal for Research in Mathematics Education*, 24(3), 233–254.
- Son, J. W., & Crespo, S. (2009). Prospective teachers' reasoning and response to a student's non-traditional strategy when dividing fraction. *Journal of Mathematics Teacher Education*, 12, 235–261.
- Tirosh, D. (2000). Enhancing prospective teachers' knowledge of children's conceptions: The case of division of fractions. *Journal for Research in Mathematics Education*, 31(1), 5–25.
- Tirosh, D., & Graeber, A. O. (1989). Preservice elementary teachers' explicit beliefs about multiplication and division. *Educational Studies in Mathematics*, 20(1), 79–96.
- Tirosh, D., & Graeber, A. O. (1990a). Evoking cognitive conflict to explore preservice teachers' thinking about division. *Journal for Research in Mathematics Education*, 21(2), 98–108.
- Tirosh, D., & Graeber, A. O. (1990b). Inconsistencies in preservice elementary teachers' beliefs about multiplication and division. *Focus on Learning Problems in Mathematics*, 12(3–4), 65–74.
- Tirosh, D., & Graeber, A. O. (1991). The effect of problem type and common misconceptions on preservice elementary teachers' thinking about division. *School Science and Mathematics*, 91(4), 157–163.

- Tobias, J. M. (2013). Prospective elementary teachers' development of fraction language for defining the whole. *Journal of Mathematics Teacher Education*, 16(2), 85–103.
- Toluk-Ucar, Z. (2009). Developing pre-service teachers understanding of fractions through problem-posing. *Teaching and Teacher Education: An International Journal of Research and Studies*, 25(1), 166–175.
- Utley, J., & Reeder, S. (2012). Prospective elementary teachers' development of fraction number sense. *Investigations in Mathematics Learning*, 5(2), 1–13.
- Whitacre, I., & Nickerson, S. D. (2011). Prospective elementary teachers develop improved number sense in reasoning about fraction magnitude. 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. 559–567). Reno, NV: University of Nevada, Reno.
- Yang, D.-C., Reys, R. E., & Reys, B. J. (2008). Number sense strategies used by pre-service teachers in Taiwan. *International Journal of Science and Mathematics Education*, 7, 383–403.
- Young, E., & Zientek, L. R. (2011). Fraction operations: An examination of prospective teachers' errors, confidence, and bias. *Investigations in Mathematics Learning*, 4(1), 1–23.

Decimals

- Graeber, A. O., & Tirosh, D. (1988). Multiplication and division involving decimals: Preservice elementary teachers' performance and beliefs. *The Journal of Mathematical Behavior*, 7(3), 263–280.
- Graeber, A. O., Tirosh, D., & Glover, R. (1989). Preservice teachers' misconceptions in solving verbal problems in multiplication and division. *Journal for Research in Mathematics Education*, 20(1), 95–102.
- Khoury, H. A., & Zazkis, R. (1994). On fractions and non-standard representations: Pre-service teachers' concepts. *Educational Studies in Mathematics*, 27, 191–204.
- Putt, I. J. (1995). Preservice teachers ordering of decimal numbers: When more is smaller and less is larger! *Focus on Learning Problems in Mathematics*, 17(3), 1–15.
- Stacey, K., Helme, S., Steinle, V., Baturo, A., Irwin, K., & Bana, J. (2001). Preservice teachers' knowledge of difficulties in decimal numeration. *Journal of Mathematics Teacher Education*, 4(3), 205–225.
- Thipkong, S., & Davis, E. J. (1991). Preservice elementary teachers' misconceptions in interpreting and applying decimals. *School Science and Mathematics*, 91, 93–99.
- Tirosh, D., & Graeber, A. O. (1989). Elementary teachers' explicit beliefs about multiplication and division. *Educational Studies in Mathematics*, 20(1), 79–96.

- Tirosh, D., & Graeber, A. O. (1990a). Evoking cognitive conflict to explore preservice teachers' thinking about division. *Journal for Research in Mathematics Education*, 21(2), 98–108.
- Tirosh, D., & Graeber, A. O. (1990b). Inconsistencies in preservice elementary teachers' beliefs about multiplication and division. *Focus on Learning Problems in Mathematics*, 12(3–4), 65–74.
- Weller, K., Arnon, I., & Dubinsky, E. (2009). Preservice teachers' understanding of the relation between a fraction or integer and its decimal expansion. *Canadian Journal of Science, Mathematics, and Technology Education*, 9(1), 5–28.
- Weller, K., Arnon, I., & Dubinsky, E. (2011). Preservice teachers' understandings of the relation between a fraction or integer and its decimal expansion: Strength and stability of belief. *Canadian Journal of Science, Mathematics, and Technology Education*, 11(2), 129–159.
- Widjaja, W., Stacey, K., & Steinle, V. (2008). Misconceptions about density of decimals: Insights from Indonesian pre-service teachers. *Journal of Science and Mathematics Education in Southeast Asia*, 31(2), 117–131.
- Widjaja, W., Stacey, K., & Steinle, V. (2011). Locating negative decimals on the number line: Insights into the thinking of pre-service primary teachers. *The Journal of Mathematical Behavior*, 30, 80–91.
- Zazkis, R., & Khoury, H. A. (1993). Place value and rational number representations: Problem solving in the unfamiliar domain of non-decimals. *Focus on Learning Problems in Mathematics*, 15, 38–51.

Geometry and Measurement

- Battista, M. T., Wheatley, G. W., & Talsma, G. (1982). The importance of spatial visualization and cognitive development for geometry learning in preservice elementary teachers. *Journal for Research in Mathematics Education*, 13(5), 332–340.
- Battista, M. T., Wheatley, G. W., & Talsma, G. (1989). Spatial visualization, formal reasoning, and geometric problem-solving strategies of preservice elementary teachers. *Focus on Learning Problems in Mathematics*, 11(4), 17–30.
- Baturo, A., & Nason, R. (1996). Student teachers' subject matter knowledge within the domain of area measurement. *Educational Studies in Mathematics*, 31(3), 235–268.
- Bright, G. W. (1979). Identification of embedded figures by prospective elementary school teachers. *School Science and Mathematics*, 79(4), 322–327.
- Bright, G. W. (1985). What research says: Teaching probability and estimation of length and angle measurements through microcomputer instructional games. *School Science and Mathematics*, 85(6), 513–522.

- Cunningham, R. F., & Roberts, A. (2010). Reducing the mismatch of geometry concept definitions and concept images held by pre-service teachers. *Issues in the Undergraduate Mathematics Preparation of School Teachers, 1*, Content Knowledge, 1–17.
- Enochs, L. G., & Gabel, D. L. (1984). Preservice elementary teachers' conception of volume. *School Science and Mathematics, 84*(8), 670–680.
- Fujita, T. (2011). Learners' level of understanding of the inclusion relations of quadrilaterals and prototype phenomenon. *Journal of Mathematical Behavior, 31*, 60–72.
- Fujita, T., & Jones, K. (2007). Learners' understanding of the definitions and hierarchical classification of quadrilaterals: Towards a theoretical framing. *Research in Mathematics Education, 9*(1–2), 3–20.
- Gabel, D. L., & Enoch, L. G. (1987). Different approaches for teaching volume and students' visualization ability. *Science Education, 71*(4), 591–597.
- Gerretson, H. (2004). Pre-service elementary teachers' understanding of geometric similarity: The effect of dynamic geometry software. *Focus on Learning Problems in Mathematics, 26*(3), 12–23.
- Gutierrez, A., & Jaime, A. (1999). Preservice primary teachers' understanding of the concept of altitude of a triangle. *Journal of Mathematics Teacher Education, 2*(3), 253–275.
- Halat, E. (2008). Pre-service elementary school and secondary mathematics teachers' van Hiele levels and gender differences. *Issues in the Undergraduate Mathematics Preparation of School Teachers, 1*.
- İymen, E., Pakmak, G., & Paksu, A. D. (2011). *Preservice elementary teachers' perceptions about parallelogram*. Paper presented at the 35th conference of the International Group for the Psychology of Mathematics Education, Ankara, Turkey.
- Köse, N. Y., & Özen, D. (2011). *Investigating preservice teachers' geometric problem solving process in dynamic geometry environment*. Paper presented at the 35th conference of the International Group for the Psychology of Mathematics Education, Ankara, Turkey.
- Lin, C.-Y., Luo, F., Lo, J.-J., & Yang, D.-C. (2011, October). U.S. and Taiwanese pre-service teachers' geometry knowledge and thinking. *International Journal for Mathematics Teaching and Learning, 1*–29.
- Mayberry, J. (1983). The van Hiele levels of geometric thought in undergraduate preservice teachers. *Journal for Research in Mathematics Education, 14*(1), 58–69.
- Menon, R. (1998). Preservice teachers' understanding of perimeter and area. *School Science and Mathematics, 98*(7), 361–368.
- Morgan, S., & Sack, J. (2011). *Learning creatively with giant triangles*. Paper presented at the 35th conference on the International Group for the Psychology of Mathematics Education, Ankara, Turkey.

- Patton, B., & Parker, Y. (2011). *Preservice teachers' knowledge of key geometric terms*. Paper presented at the 33rd annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, Reno, NV.
- Pickreign, J. (2007). Rectangles and rhombi: How well do preservice teachers know them? *Issues in the Undergraduate Mathematics Preparation of School Teachers*, 1.
- Pitta-Pantazi, D., & Christou, C. (2009). Cognitive styles, task presentation mode and mathematical performance. *Research in Mathematics Education*, 11(2), 131–148.
- Reinke, K. S. (1997). Area and perimeter: Preservice teachers' confusion. *School Science and Mathematics*, 92(2), 75–77.
- Schnorenberg, M., & Chamberlin, M. T. (2011). *Using a lesson experiment to investigate the promise of differentiated instruction for prospective elementary teachers: An area and volume lesson*. Paper presented at the 33rd annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, Reno, NV.
- Tsamir, P., & Pitta-Pantazi, D. (2008). Prospective teachers more A–more B solutions to area-perimeter median-bisector tasks. *Hellenic Mathematical Society International Journal for Mathematics in Education*, 1, 69–110.
- Zevenbergen, R. (2005). Primary preservice teachers' understandings of volume: The impact of course and practicum experiences. *Mathematics Education Research Journal*, 17(1), 3–23.

Algebra

- Berk, D., Taber, S., Carrino Gorowara, C., & Poetzl, C. (2009). Developing prospective elementary teachers' flexibility in the domain of proportional reasoning. *Mathematical Thinking and Learning*, 11(3), 113–135.
- Billings, E. M. H., & Klanderma, D. (2000). Graphical representations of speed: Obstacles preservice K–8 teachers experience. *School Science and Mathematics*, 100(8), 440–450.
- Briscoe, C., & Stout, D. (2001). Prospective elementary teachers' use of mathematical reasoning in solving a lever mechanics problem. *School Science and Mathematics*, 101(5), 228–235.

- Callahan, K. M., & Hillen, A. F. (2012). Prospective teachers' transition from thinking arithmetically to thinking algebraically about even and odd numbers. 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. 584–590). Kalamazoo, MI: Western Michigan University.
- Jacobson, E., & Izsák, A. (2012). Using a knowledge-in-pieces approach to explore the illusion of proportionality in covariance situations. 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. 629–636). Kalamazoo, MI: Western Michigan University.
- Meel, D. E. (1999). Prospective teachers' understandings: Function and composite function. *Issues in the Undergraduate Mathematics Preparation of School Teachers: The Journal*, 1, 1–12.
- Milinkovic, J. (2012). Pre-service teachers' representational preferences. In T. Y. Tso (Ed.), *Proceedings of the 36th conference of the International Group for the Psychology of Mathematics Education* (Vol. 3, pp. 3–209). Taipei, Taiwan: PME.
- Mills, B. (2012). The equal sign: An operational tendency does not mean an operational view. 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. 745–748). Kalamazoo, MI: Western Michigan University.
- Nillas, L. A. (2010). Characterizing preservice teachers' mathematical understanding of algebraic relationships. *International Journal for Mathematics Teaching and Learning*, 1–24.
- Otto, C. A., Everett, S. A., & Luera, G. R. (2008). Using a functional model to develop a mathematical formula. *School Science and Mathematics*, 108(6), 228–237.
- Pomerantsev, L., & Korosteleva, O. (2003). Do prospective elementary and middle school teachers understand the structure of algebraic expressions? *Issues in the Undergraduate Mathematics Preparation of School Teachers*, 1–10.
- Prediger, S. (2010). How to develop mathematics-for-teaching and for understanding: The case of meanings of the equal sign. *Journal of Mathematics Teacher Education*, 13(1), 73–93.
- Richardson, K., Berenson, S., & Staley, K. (2009). Prospective elementary teachers use of representation to reason algebraically. *Journal of Mathematical Behavior*, 28(2), 188–199.
- Rivera, F. D., & Becker, J. R. (2007). Abduction-induction (generalization) processes of elementary majors on figural patterns in algebra. *Journal of Mathematical Behavior*, 26(2), 140–155.
- Schmidt, S. & Bednarz, N. (1997). Raisonnements arithmétiques et algébriques dans un contexte de résolution de problèmes: Difficultés rencontrées par les futurs enseignants [Arithmetical and algebraic reasoning in a problem-solving context: Difficulties met by future teachers]. *Educational Studies in Mathematics*, 32, 127–155.

- Schmidt, S., & Bednarz, N. (2002). Arithmetical and algebraic types of reasoning used by pre-service teachers in a problem-solving context. *Canadian Journal of Mathematics, Science and Technology Education*, 2(1), 67–90.
- Stylianou, D. A., Smith, B., & Kaput, J. J. (2005). Math in motion: Using CBRs to enact functions. *Journal of Computers in Mathematics and Science Teaching*, 24(3), 299–324.
- van Dooren, W., Verschaffel, L., & Onghena, P. (2003). Pre-service teachers' preferred strategies for solving arithmetic and algebra word problems. *Journal of Mathematics Teacher Education*, 6(1), 27–52.
- You, Z., & Quinn, R. J. (2010). Prospective elementary and middle school teachers' knowledge of linear functions: A quantitative approach. *Journal of Mathematics Education*, 3, 66–76.
- Zazkis, R., & Liljedahl, P. (2002a). Arithmetic sequence as a bridge between conceptual fields. *Canadian Journal of Mathematics, Science and Technology Education*, 2(1), 93–120.
- Zazkis, R., & Liljedahl, P. (2002b). Generalization of patterns: The tension between algebraic thinking and algebraic notation. *Educational Studies in Mathematics*, 4, 379–402.