

Jacqueline J. Sack
Associate Professor
Department of Urban Education
University of Houston - Downtown
One Main Street, Houston, Texas 77002-1001

Education

Ed.D. 2005, University of Houston, TX. Curriculum and Instruction, emphasis in Mathematics Education

Dissertation: *Paths toward mathematics teachers' empowerment: A narrative surrounding high school reform.*

M.L.S. 1984, Sam Houston State University, Huntsville, TX, Major in Library Science

B.Sc. Honours 1975, University of the Witwatersrand, South Africa. Major in Chemistry.

B.Sc. 1973, University of the Witwatersrand, South Africa. Majors in Chemistry and Mathematics.

Accreditations

Texas Secondary Mathematics Teacher Certification, Grades 6-12

Texas Master Mathematics Teacher Certification, Grades 8-12

Texas Master Mathematics Teacher Certification, Grades 4-8

Teaching Experience: Institutions of Higher Education

University of Houston Downtown (August, 2009-Present)

Associate Professor (September, 2015-)

Assistant Professor (August, 2009-August, 2015)

EED 3312 Effective Teaching Strategies in Mathematics Education EC-6 and 4-8

PED 3302 Teaching Middle School Mathematics (4-8)

MAT 5316 Mathematics Methods 4-8

MAT 5399 Directed Study in Urban Teaching

The following courses were co-taught with faculty from the Department of Mathematics and Statistics as part of the Teacher Quality and Noyce projects on which Sack is a Principal Investigator and Co-Principal Investigator respectively.

MATH 6302 Mathematical Structures for Teachers

MATH 3303 Geometry for Teachers

MAT 6180/6280 Practicum for Urban Teachers

MAT 6313 Advanced Methods for the Culturally Diverse Classroom

MAT 5331 Advanced Geometric Methods

Wiess School of Natural Sciences, Rice University (July, 2006-May, 2009)

Assistant Clinical Professor of Mathematics

Rice University School Mathematics Project, Houston, TX (January, 2005 – May, 2009)

Associate Director for Curriculum Development

Mathematics Leadership Institute Geometry and Leadership strands, Rice University

Mathematics Leadership Summer Institute, Summers, 2005, 2006, 2007, 2008. (Course Instructor)

Geometry for Elementary School Teachers, 2003, 2004, 2005, 2006, 2007 (Course Instructor)

Geometry for Middle School Teachers, 2002, 2003, 2006 (Course Instructor)

Topics in Algebra, 2007 (Course Instructor)

University of Houston

Adjunct Instructor

CUIN6375 Classroom Management, Fall, 2007

CUIN4349/CUIN6340 Teaching Geometry Grades 6-12, Fall, 2008

Teaching Experience: Public School

Houston Independent School District (Fall, 1993- December, 2004)

Secondary Mathematics Specialist, Curriculum Department

Sixth Grade Mathematics Model Lessons (Program Writer; Teacher Developer, 2004-2005)

Geometry Model Lessons (Program Writer and Teacher Developer, 2003-2004)

Lanier Middle School, Eighth Grade Mathematics Teacher (1993-2002); Mathematics Department Co-Chairperson (1998-2001)

Geometry Pre-AP/GT (1994-2002)

Algebra 1 Pre-AP/GT (1996, 1998-2002)

Pre-Algebra Pre-AP/GT (1995-2002)

Math 8 Regular (1993-1994)

Teaching Experience: Private School

St. John's School, San Juan, Puerto Rico, Mathematics Teacher (1992-1993)

Grade 8-9: Algebra 1

Grade 8: Pre-Algebra

Grade 7: Math 7

Hebrew Academy, Houston, TX, Teacher / Information Specialist (1985-1992)

Grade 8: Algebra 1

Grade 9: Geometry

Grade 10: Algebra 2

Grade 10: Chemistry

Grade 8: Physical Science

Grade 7: Earth Science

Teaching and Instructional Support

Rice University School Mathematics Project, Houston, TX, Mathematics Leadership Institute Program Manager (2005-2009)

Five-year, \$3.8 million NSF MSP grant to develop and support 80 lead high school mathematics teachers in 40 high schools. Duties: Provide development and support for teacher-leaders and teachers in the enactment of programs; Prepare proposals and reports to funders; Disseminate findings to the greater education community through professional conferences and publications.

Publications

Books and Book Chapters

- Sack, J., & Quander, J. (pending). *Care as an Approach for Supporting Induction Years Secondary Mathematics Teachers*. Chapter in a book resulting from a Faculty Academy collaboration of education program faculty on induction-year STEM teacher support.
- Sack, J., & Vazquez, I. (2016). *A 3-D Visualization Teaching-Learning Trajectory for Elementary Grades Children*. Springer Briefs in Education. DOI 10.1007/978-3-319-29799-6, Springer, Dordrecht, The Netherlands.
- Sack, J., & Vazquez, I. (2012). The Geocadabra Construction Box: Open source geometry interface within a 3D visualization program for elementary children. In Méndez-Vilas, A. (Ed.) *Education in a technological world: communicating current and emerging research and technological efforts*. Badajoz, Spain: Formatex Research Center, 505-512.
- Sack, J. (2011). Fostering creative minds through problem solving in a 3-D visualization design research program. In Craig, C. J., & Deretchin, L. F. (Eds.). *Cultivating Curious and Creative Minds: The Role of Teachers and Teacher Educators, Part II, Teacher Education Yearbook XIX*, Lanham, MD: Rowman & Littlefield Education, 200-220. (Also published in *Action and Teacher Education: The Journal of the Association of Teacher Educators*, 32(5-6), December 2010, 200-220.)
- Sack, J. & Vazquez, I. (2011). The intersection of lesson study and design research: A 3-D visualization development project for the elementary mathematics curriculum. In Hart, L., Alston, A., & Murata, A. (Eds.). *Lesson Study Research and Practice in Mathematics Education*, DOI 10.1007/978-90-481-9941-9_16, Springer Science + Business Media, Dordrecht, 201-220.
- Sack, J. J., & van Niekerk, R. (2009). Developing the spatial operational capacity of young children using wooden cubes and dynamic simulation software. In Craine, T., & Rubenstein, R. (Eds.) *Understanding Geometry for a Changing World*, Seventy-first yearbook. National Council of Teachers of Mathematics, Reston, VA, 141-154.
- Sack, J., & Parr, R. (2008). *Instructional strategies for Discovering Geometry*. Emeryville, CA: Key Curriculum Press Professional Development.
- Parr, R., & Sack, J. (2008). *Instructional strategies for Discovering Mathematics*. Emeryville, CA: Key Curriculum Press Professional Development.

Articles in Peer Reviewed Journals

- Sack, J., Quander, R., Mitchell, L. (2018). Pre-service mathematics teacher identity issues with respect to learning and teaching high school geometry. *Open Mathematical Education Notes (OMEN)*. 8, 1-14. Available online at [www.imvibl.org / JOURNALS / IMVI OMEN](http://www.imvibl.org/JOURNALS/IMVI/OMEN). doi: 10.7251/OMEN1801001S
- Sack, J., Quander, R., Redl, T., & Leveille, N. (2016). The community of practice among mathematics and mathematics education faculty members at an urban minority serving institution in the U. S. *Innovative Higher Education*. 41(2), 167-182. Available online at <http://link.springer.com/article/10.1007/s10755-015-9340-9>. doi:10.1007/s10755-015-9340-9

- Sack, J., & Vazquez, I. (2013). Geocadabra Construction Box: A dynamic geometry interface within a 3D visualization teaching-learning trajectory for elementary learners. *Mevlana International Journal of Education*, 3(3), 25-35. Available online at <http://mije.mevlana.edu.tr/>
- Sack, J. (2013). Development of a top-view numeric coding teaching-learning trajectory within an elementary grades 3-D visualization design research project. *Journal of Mathematical Behavior*, 32(2), 183-196. doi: 10.1016/j.bbr.2011.03.031
- Sack, J., & Kamau, N. (2009). The impact of the lead teacher professional learning community within the Rice University Mathematics Leadership Institute. *Journal of Mathematics and Science: Collaborative Explorations*, 11, 141-162.
- Sack, J. J. (2008). Commonplace Intersections within a high school mathematics leadership institute. *Journal of Teacher Education*, 59(2), 189-199.

Conference Proceedings

The following conference proceedings evolved over several years, beginning in 2008, as co-researchers Sack and Vazquez designed a previously uncharted 3D visualization teaching-learning trajectory for elementary grades children. As the project progressed, different aspects of participant children's learning and conceptualization became apparent. These are reflected in the wide variety of conference proceedings for both international and national audiences over time.

- Sack, J. & Vazquez, I. (2012). Evolution of number and permutation activities within an elementary 3D visualization teaching-learning trajectory. In Van Zoest, L. R., Lo, J. J., & Kratky, J. L. (Eds.) *Proceedings of the 34th Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*. Kalamazoo, MI: Western Michigan University, 1032-1035.
- Sack, J., & Vazquez, I. (2011). An elementary 3D visualization learning trajectory. In Wiest, L. R., & Lamberg, T. (Eds.). (2011). *Proceedings of the 33rd Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*. Reno, NV: University of Nevada, Reno, 215-223.
- Sack, J. & Vazquez, I. (2011). Development of a learning trajectory to conceptualize and represent volume using top-view coding. In Ubuz, B. (Ed.). *Proceedings of the 35th Conference of the International Group for the Psychology of Mathematics Education*, Ankara, Turkey, 4, 89-96.
- Sack, J. & Vazquez, I. (2010). Elementary-level conceptualization of volume using numeric top-view coding within a 3D visualization development program. In Brosnan, P., Erchick, D. B., & Flevaris, L. (Eds.). *Proceedings of the 32nd Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*. Columbus, OH: The Ohio State University, 573-581.
- Sack, J., Vazquez, I., & Moral, R. (2010). Elementary children's 3-D visualization development: Representing top views. In Pinto, M. F. & Kawasaki, T. F. (Eds.). *Proceedings of the 34th Conference of the International Group for the Psychology of Mathematics Education*. Belo Horizonte, Brazil. 4, 113-120.
- Sack, J. J., & Vazquez, I. (September, 2009). Elementary children's 3-D visualization development: Representing top views. In Swars, S. L., Stinson, D. W., & Lemons-Smith,

S. (Eds.). *Proceedings of the Thirty-First Annual Meeting of the Psychology of Mathematics Education-North America*, Atlanta, GA: Georgia State University, 5, 560-568.

Sack, J., & Vazquez, I. (2009, April). Differentiation as a vehicle to foster children's 3-D visualization development. *Proceedings of the American Educational Research Association*, San Diego, CA.

Sack, J., & Vazquez, I. (2008). Three-dimensional visualization: Children's non-conventional verbal representations. In Figueras, O., Cortina, J. L., Alatorre, S., Rojano, T., & Sepulveda, A. (Eds.) *Proceedings of the Joint Meeting of the International Group of the Psychology of Mathematics Education, 32 and Psychology of Mathematics Education-North America, XXX*. Morelia, Mexico: Cinvestav-UMSNH. 4, 217-224.

The following conference proceedings evolved out of seminal lessons that the authors created using custom made giant triangles. The work originally began in 1999, when co-authors, Morgan and Knoll collaborated with Sack in her middle grades classroom with her students.

Morgan, S., & Sack, J. (2011). Learning creatively with giant triangles. In Ubuz, B. (Ed.). *Proceedings of the 35th Conference of the International Group for the Psychology of Mathematics Education*, Ankara, Turkey, 3, 249-256.

Morgan, S., & Sack, J. (2011). Build something beautiful and interesting with giant triangles: An entry into deep mathematics. In Sarhangi, R., & Séquin, C. H. (Eds.). *Bridges 2011: Mathematics, Music, Art, Architecture, Culture*, Coimbra, Portugal, 629-630.

Morgan, S., Sack, J., & Knoll, E. (2010). Creative learning with giant triangles. *Bridges 2010: Mathematics, Music, Art, Architecture, Culture*, 523-530.

Professional Teaching Materials

Geometry for High School Teachers. (2016) <http://jackiesack.wixsite.com/geometry>

Geometry Teacher Quality Module. (2004). Houston, TX: Rice University School Mathematics Project. (Co-author and Module Development Manager)

TEXTEAMS High school geometry: Supporting the TEKS and TAKS. (2003). Austin, TX: Texas Education Agency. (Co-author)

TEXTEAMS Rethinking middle school mathematics: Geometry across the TEKS. (2003). Austin, TX: Texas Education Agency. (Co-author)

TEXTEAMS Geometry for all. (1998). Austin, TX: Texas Education Agency. (Co-author)

In Press

Sack, J., & Quander, R. *Care as an Approach for Supporting Non-traditional Secondary Mathematics Teachers*. Chapter in a book resulting from the collaboration of education faculty from universities across the Houston region.

Conference Presentations

International:

Sack, J. & Quander, R. 5th International Realistic Mathematics Education Conference: Using Realistic Contexts and Emergent Models to Develop Mathematical Reasoning, University of Colorado, Boulder, CO, September 18-20, 2015. *Framing a geometry trajectory on RME principles for methods and content courses for undergraduate preservice teachers*.

- Vazquez, I. & Sack, J. 5th International Realistic Mathematics Education Conference: Using Realistic Contexts and Emergent Models to Develop Mathematical Reasoning, University of Colorado, Boulder, CO, September 18-20, 2015. *Developing 3rd grade children's 3D visualization and numeration skills using intuitively accessible models.*
- Morgan, S., & Sack, J., Bridges 2011: Mathematics, Music, Art, Architecture, Culture, Coimbra, Portugal, July 26-31, 2011. *Build something beautiful and interesting with giant triangles: An entry into deep mathematics.*
- Sack, J., & Vazquez, I., 35th Conference of the International Group for the Psychology of Mathematics Education, Ankara, Turkey, July 11-16, 2011. *Development of a learning trajectory to conceptualize and represent volume using top-view coding.*
- Morgan, S., & Sack, J., 35th Conference of the International Group for the Psychology of Mathematics Education, Ankara, Turkey, July 11-16, 2011. *Learning creatively with giant triangles.*
- Sack, J., & Vazquez, I., 34th Conference of the International Group for the Psychology of Mathematics Education, Belo Horizonte, Brazil, July 18-23, 2010. *Elementary children's 3-D visualization development: Representing top views.*
- Sack, J., & Vazquez, I., Joint Meeting of the International Group for the Psychology of Mathematics Education and Psychology of Mathematics Education North America, XXX. *Three-dimensional visualization: Children's non-conventional verbal representations.* Morelia, Mexico, July 17-21, 2008.
- Sack, J., Association for Mathematics Education of South Africa, Tenth National Congress, July 1-4, 2004. *Approaches to filling the gaps and correcting misconceptions about the concept of area.*
- Sack, J. & van Niekerk, R., Association for Mathematics Education of South Africa, Tenth National Congress, July 1-4, 2004. *Raising the roof on 3-D visualization.*
- National:**
- Sack, J. American Educational Research Association Annual Meeting, New York, NY, April 13-17, 2018. *Challenges in Effective Mentoring and Retention of Novice Teachers.*
- Sack, J. & Vazquez, I. National Council of Teachers of Mathematics Innov8 Conference, Las Vegas, NV, November 15-17, 2017. *Developing Visualization in Elementary Classrooms.*
- Sack, J. & Quander, R. American Educational Research Association Annual Meeting, San Antonio, TX, April 27-May 1, 2017. *Care as an approach to supporting students from preservice to induction years.*
- Sack, J. & Quander, R. NSF Robert Noyce Teacher Scholarship Program Conference, Washington D.C., July 20-22, 2016. *Care as an approach to supporting non-traditional pre-service and in-service secondary mathematics teachers.*
- Sack, J. National Council of Teachers of Mathematics, Regional Conference, Indianapolis, October 29-31, 2014. *Realistic Mathematics Education (RME) and visualization in collaborative settings.*
- Sack, J. National Council of Teachers of Mathematics, Regional Conference, Indianapolis, October 29-31, 2014. *Giant polyhedra, inside and out: Hands-on development of 3-D concepts.*
- Sack, J. Building Connections for Revitalizing STEM Education in High Need Schools: NSF Robert Noyce Teacher Scholarship Program Conference, Washington D.C., June 18-20,

2014. *This is not your grandfather's geometry.*

Quander, R., & Sack, J., Association of Mathematics Teacher Educators, 18th Annual Conference, Irvine, CA, Feb. 6-8, 2014. *Retaining and supporting non-traditional future high school mathematics teachers.*

Sack, J. & Vazquez, I., 34th Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education. Kalamazoo, MI: Western Michigan University, Nov. 1-4, 2012. *Evolution of number and permutation activities within an elementary 3D visualization teaching-learning trajectory.*

Sack, J., & Connell, M., National Council of Teachers of Mathematics Annual Meeting & Exposition, Philadelphia, PA, April 25-28, 2012. *Giant polyhedra, inside and out: Hands-on development of 3-D concepts.*

Sack, J., & Vazquez, I., 33rd Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, University of Nevada, Reno, October 20-23, 2011. *An elementary 3D visualization learning trajectory.*

Sack, J., & Vazquez, I., 32nd Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education. Columbus, OH, October 28-31, 2010. *Elementary-level conceptualization of volume using numeric top-view coding within a 3D visualization development program.*

Sack, J., & Vazquez, I., Thirty-First Annual Meeting of Psychology of Mathematics Education-North America, Atlanta, GA, September 23-26, 2009. *Elementary children's 3-D visualization development: Representing top views.*

Sack, J., & Vazquez, I., 2009 American Educational Research Association Annual Meeting, San Diego, CA, April 13-17, 2009. *Differentiation as a vehicle to foster children's 3-D visualization development.*

Sack, J., & Kamau, N. 2009 National Science Foundation Math and Science Partnership Learning Network Conference, Washington, D.C., January 26-27, 2009. *The development of Texas Master Mathematics Teachers through the Rice University Mathematics Leadership Institute.*

Sack, J., National Council of Teachers of Mathematics Annual Meeting, Salt Lake City, UT, April 10-12, 2008. *Build, draw, and interpret: 3-D visualization activities using Somas and cubes.*

Sack, J., Kamau, N., & Roberts, M., National Council of Supervisors of Mathematics 40th Annual Conference, Salt Lake City, UT, April 7-9, 2008. *Developing and supporting high school mathematics lead teachers: Insights into a university/school-district leadership collaboration.*

Sack, J., 2008 National Science Foundation Math and Science Partnership Learning Network Conference, Washington, D.C., January 28-29, 2008. *The impact of the lead-teacher professional learning community within the Rice University Mathematics Leadership Institute.*

Sack, J., & McCoy, A., North American Chapter of the International Group for Psychology of Mathematics Education, 29th Annual Meeting, Lake Tahoe, Nevada, October 25-28, 2007. Short research paper: *Strengthening mathematics teachers' pedagogical content knowledge through collaborative investigations in combinatorics.*

Sack, J., National Council of Teachers of Mathematics Annual Meeting, Atlanta, March 23,

2007. *Build it, draw it, interpret it.*

Sack, J., et al., 2007 National Science Foundation Math and Science Partnership Learning Network Conference, Washington D.C., January 26-27, 2007. *Bringing together professor, graduate student and teacher via challenging mathematics curricula.*

Sack, J., North American Chapter of the International Group for Psychology of Mathematics Education, 28th Annual Meeting, Mérida, Mexico, November 9-12, 2006. Poster presentation: *A view of high school mathematics curricula through the lens of Schwab's commonplaces.*

State level:

Sack, J., & Connell, M., New Horizons in STEM Education, sponsored by The Texas Mathematics Faculty Collaborative, San Antonio, TX, March 27-28, 2014. *Touching base: Turning the A, B, and C into meaningful abc in mathematics.* Invited speaker.

Sack, J., & Connell, M., National Council of Teachers of Mathematics Regional Conference & Exposition, Dallas, TX, Oct. 10-12, 2012. *Giant polyhedra, inside and out: Hands-on development of 3-D concepts.*

Sack, J. Conference for the Advancement of Mathematics Teaching, Houston, TX, July 18-20, 2012, *Giant polyhedra, inside and out: Hands-on development of 3-D concepts.*

Sack, J., & Connell, M., New Developments in Mathematics Education: College and Career Readiness Institute Faculty Collaborative – Mathematics, Round Rock, Texas, September 16, 2011. *Transforming mathematics courses for pre-service teachers.*

Sack, J., Conference for the Advancement of Mathematics Teaching, Houston, TX, July. 2009. *Building 3-D Visualization Skills through Multiple Representations.*

Sack, J., & Vazquez, I., Conference for the Advancement of Mathematics Teaching, Dallas, TX, July 2008. *3-D visualization: Why? When? How?*

Sack, J., Conference for the Advancement of Mathematics Teaching, Dallas, TX, July 2008. *Using TAKS stems to develop differentiated problem sets.*

Sack, J., National Council of Teachers of Mathematics Regional Meeting, Houston, November 29-30, 2007. *Build it, draw it, interpret it.*

Sack, J., & Luke, K., Texas Association for Supervisors of Mathematics Fall Meeting, Sept. 18, 2006. Program presenter: *Lessons Learned Across the Nation; Developing Leaders at the Campus Level; The Struggle to Be Heard: Communication Through Assertion and Reflection.*

Sack, J., Conference for the Advancement of Mathematics Teaching, Houston, TX, July 2006. *Instructional strategies that promote literacy in mathematics.*

Papakonstantinou, A., & Sack, J., Dana Research Center for Math and Science Education, University of Texas at Austin, Teacher Quality Grant Program, Meeting for Grant Awardees, Austin, March 27-28, 2006. Keynote address: *A framework for geometry, K – 12.*

Papakonstantinou, A., & Sack, J., Dana Center's 10th Annual October Mathematics Higher Education Conference, October 29-30, 2004. *Geometry Teacher Quality Module.*

Sack, J., Conference for the Advancement of Mathematics Teaching, Houston, TX, July 2003. *Giant Polyhedra, Inside and Out.*

Sack, J., Texas Association for the Gifted and Talented, Annual Conference, Houston, TX, November 2002. *MATHCOUNTS, A Problem-Solving Program*

Sack, J., Conference for the Advancement of Mathematics Teaching, Houston, TX, July 2000. *The Platonic Solids, Inside and Out.*

Sack, J., Morgan, S., & Knoll, E., Conference for the Advancement of Mathematics Teaching, Houston, TX, July 2000. *Doubling the Tetrahedron – What Fills It?*

Sack, J., Conference for the Advancement of Mathematics Teaching, Houston, TX, July 2000. *MATHCOUNTS – How to Implement the Program Effectively.*

Sack, J., Conference for the Advancement of Mathematics Teaching, Houston, TX, July 1997. *MATHCOUNTS.*

Regional:

Sack, J. National Council of Teachers of Mathematics, Regional Conference, Houston, November 20-21, 2014. *Realistic Mathematics Education (RME) and visualization in collaborative settings.*

Sack, J. National Council of Teachers of Mathematics, Regional Conference, Houston, November 20-21, 2014. *Giant polyhedra, inside and out: Hands-on development of 3-D concepts.*

Sack, J., & Mitchell, L., TEACH! Houston Area Student Teaching Conference & Teacher Job Fair. April 11, 2014; November 14, 2014. *Developing a classroom management plan in a culturally diverse classroom.*

Sack, J., & Redl, T. High Impact Practices Showcase, April 29, 2013. *The University of Houston Downtown Teacher Quality Mathematics Leadership Project's High Impact Experience in Middle School Mathematics Classrooms.*

Connell, M., Sack, J., & Beene, S., Cross-Institutional Collaborative Seminar on Mathematics Teacher Preparation, Houston, TX, January 28-29, 2010. *Mathematics Cross-Instructional Collaborative Seminar.*

Sack, J., Expanding Your Horizons Conference, Houston, TX, March 8, 2008. *3-D Visualization.*

Sack, J., Rice University School Mathematics Project Spring Networking Conference, February 24, 2007. Keynote address. *3-D: The foundation for developing geometric thinking.*

Sack, J., Expanding Your Horizons Conference, Houston, TX, Feb. 26, 2006. *Using techniques from the Raw Recruits project to engage students in problem solving.*

Sack, J., & Papakonstantinou, A., Training of Trainers, *Geometry Teacher Quality Module*, May 12, 2004, Fort Worth, TX, and May 18 -19, August 20, 2004, Houston, TX.

International, National and Regional Professional Presentations and Workshops

Sack, J., *Giant Polyhedra, Inside and Out: Rigorous, Hands-On Mathematics Experiences.* Commerce A & M University, Department of Mathematics, Commerce, TX. Math Club Meeting, February 22, 2013. Invited speaker.

Sack, J., & Connell, M., *Giant Polyhedra, Inside and Out: Rigorous, Hands-On Mathematics Experiences.* Prairie View A & M University, Department of Mathematics, Prairie View, TX, Colloquium, March 2, 2012. Invited speaker. <http://www.txfacultycollaboratives.org/mathematics/video>

Quander, J., Leveille, N., Redl, T., Sack, J., & Connell, M., *Thinking Outside the Building: CMS and Urban Ed Collaborations*. Department of Mathematics and Computer Science, University of Houston Downtown, Department Seminar. October 31, 2011.

Using Discovering Geometry. Santa Fe Independent School District, TX., for Santa Fe High School Geometry teachers. August 18, 2009. Invited speaker.

Sack, J., & van Niekerk, R., *Building 3-D Visualization Skills through Multiple Representations*. Nelson Mandela Metropolitan University, Port Elizabeth, South Africa. May 22-23, 2009. Invited speaker.

Targeting Talent, Investing in Excellence, Facilitating Success (Grade 10 – Grade 12 Learners), University of the Witwatersrand, South Africa. July 3-6, 2007. Guest instructor.

Using techniques from the Raw Recruits project to engage students in problem solving. University of St. Thomas, Masters-level course: EDUC 5318, Middle School Methods, Feb. 22, 2006. Guest speaker.

The Concept of Scale in the Senior High School Mathematics Classroom, Clear Creek ISD, January-March, 2006. Invited presenter.

High School Geometry, Pearland ISD, August, 2005-January, 2006. Invited presenter.

Geometry Workshop. Hirsch Lyons School, Johannesburg, South Africa. July 26, 2005. Invited presenter.

Mathematics Leadership Institute Geometry and Leadership strands, Rice University Mathematics Leadership Summer Institute, Houston, June 6-July 1, 2005.

Training of Trainers, *Geometry Module*, Mathematics Department, Louisiana State University, Baton Rouge, May 6-7, 2005. Invited presenter.

Houston ISD Senior High School Principals Meeting, *Rice University NSF Mathematics Leadership Institute*, Houston, TX, February, 2005.

Geometry Module, Pasadena Independent School District High School Geometry Teachers Workshop, October 14, 2004; Middle School Teachers Workshop, October 20, 2004. Invited presenter.

MORE Math Program for Teachers. *Informal Geometry from a Problem-Solving Approach*. Aldine Independent School District, TX, Summer, 2003. Co-instructor/Advanced internship.

HULINC (Houston Urban Systemic Initiative) Master Teacher:

Geometry for Elementary School Teachers (Fall 2002, Spring 2003, Fall 2003 (two sections), Fall 2004).

Geometry for Middle School Teachers (Fall 2001, Spring 2003, Spring, 2006).

MATHCOUNTS Coaches Workshops. San Antonio, September, 2002; San Antonio. July 2002; Houston. October 2002; Houston. September 2001; San Antonio. August 2001.

TEXTEAMS, *Geometry for All*. Repeat presentations 1999-2001.

TEXTEAMS, *Algebra 2000*. Repeat presentations 2001-2002.

Rice University School Mathematics Project, Fall and Spring Workshops:

Regular Polyhedra. Co-presenter, Simon Morgan, Oct., 2001.

Developing the Concept of Number in Grades 4 – 6, Sept., 1998.

Middle School: Exploring the Coordinate Plane. Co-presenter, Sharon Gordon, Oct., 1997.

Supervision

Principal Investigator, Malati Fractions mathematics intervention for 3rd grade students. Fall, 2015-Present, Wharton Elementary School.

Principal Investigator, 3-D visualization instructional research project for 3rd and 4th grade after-school students. 2007-Present, Wharton Elementary School.

Undergraduate teacher candidate field work coordinator, University of Houston – Downtown, Department of Urban Education, Fall, 2009-Spring, 2012.

Manager, Rice University Mathematics Leadership Institute, Summers, 2005-2008.

Support Teacher, Urban Programs, Rice University School Mathematics Project.

Carver High School and Drew Academy, Aldine ISD, Summer, 2001.

Carver High School. Aldine ISD, Summer, 2000.

Burbank and Patrick Henry Middle Schools, HISD. Summer, 1999.

Sam Houston High School, HISD, Summer, 1998.

Hogg Middle School, HISD, Summer, 1997.

Hamilton Middle School. HISD, Summer, 1996.

Marshall Middle School, HISD, Summer, 1995.

Mentor of Teachers, Lanier Middle School, Houston Independent School District, 1995, 1998.

Critical Reviews

J. Sack [Review Editor]. *Frontiers in Education: Teacher Education*. <http://fron.tiers.in/go/2de3zW>. Beginning January 2018.

J. Sack [Presentation proposal reviewer], Psychology of Mathematics Education-International Group, annual conference, 2013, 2014, 2015, 2016, 2017, 2018. The Local Organizing Committee recruits potential reviewers from experienced PME members who have either had two PME Research Reports accepted in the last five years or had three PME Research Reports accepted in the last ten years (see <http://www.igpme.org/#/reviewing-guidelines/3929367>)

J. Sack [Reviewer]. *From College to Classroom: Tensions when Boundary-Crossing to Maintain a Dialogue of Supervision*. *12th International Conference on Self-Study of Teacher Education Practices*, Reviewed October 8, 2017.

J. Sack [Reviewer]. *Re-knowing Pedagogy of Supervising Self-Study Research: Collective Unfolding of Emotions*. *12th International Conference on Self-Study of Teacher Education Practices*, Reviewed October 8, 2017.

J. Sack [Reviewer]. *MecWilly Educational: A robot partner for preschool children learning English*. *Computers and Education*. Reviewed June 7, 2014.

- J. Sack [Reviewer]. The effects of 3D-representation instruction on composite-body surface-area learning for elementary school students. *Computers and Education*. Reviewed June 1, 2013.
- J. Sack [Presentation reviewer], North American Chapter for the Psychology of Mathematics Education annual conference, 2006, 2007, 2009, 2010, 2012
- J. Sack [Presentation reviewer], Psychology of Mathematics Education-International Group, annual conference, 2013, 2014, 2015, 2016, 2017, 2018. The Local Organizing Committee recruits potential reviewers from experienced PME members who have either had two PME Research Reports accepted in the last five years or had three PME Research Reports accepted in the last ten years (see <http://www.igpme.org/#/reviewing-guidelines/3929367>)
- J. Sack [Reviewer]. Grade 3 students' mathematization through modeling: Situation models and solution models with multi-digit subtraction problem solving. *Journal of Mathematical Behavior*. Reviewed December 28, 2010.
- J. Sack [Peer reviewer]. *Lesson Study* working group, Psychology of Mathematics Education- North American Chapter of the International Group, 2008-10.
- J. Sack et. al. [Reviewer]. A case of a high school English teacher's responsive curriculum planning submission. *Teacher Education and Practice*. Reviewed September 20, 2003.
- J. Sack et. al. [Reviewer]. Reframing the practicum: Constructing performance space in initial teacher education. *Teaching and Teacher Education*. Reviewed February 26, 2004.
- J. Sack et. al. [Reviewer]. Teacher classroom research: Reflections on a nation-wide experience in Iran. *Teachers and Teaching: Theory and Practice*. Reviewed March 3, 2004.

University Service

UHD Faculty Senator, 2016-2018

Greater Texas Foundation Scholarship proposal committee, November, 2016 Funded March, 2017

Panelist, Symposium of Supported Scholarship and Creativity, College of Public Service, October 19, 2016.

Ex-Officio Member, Mathematics & Statistics Department Graduate Committee, Fall, 2016-Present

Co-Principal Investigator, *ESPRIT de Corps: Expanding STEM Professionals' Roles in Teaching*, September 2015-July, 2020, funded by the National Science Foundation, Robert Noyce Teacher Scholarship Program, Award # 1540769 (\$1,444,643)

College Algebra Community of Practice, Department of Mathematics and Statistics, UHD, leadership team member, August 2015-Present.

Project Director/Principal Investigator, *University of Houston Downtown Teacher Quality Mathematics Leadership Project* (2012 -2014). Provided fully-funded graduate course credit to 23 middle school mathematics teachers.

Co-Principal Investigator, *Recruiting and Preparing UHD Mathematics Majors for Houston-Area Classrooms: The UHD Noyce Mathematics Teacher Scholarship Program*, August, 2011-July, 2016 (extended to July, 2018), funded by the National Science Foundation, Robert Noyce Teacher Scholarship Program, Award # 1136222 (\$1,079,257). Teacher participants in the Teacher Quality Mathematics Leadership Project served as mentor teachers to Noyce Scholars during their field experiences in public urban school classrooms. Facilitated registration for Noyce Scholars in Urban Education secondary certification courses.

College & Career Readiness Initiative Mathematics Faculty Collaborative, Mathematics and Science Partnership to Support College and Career Readiness, Team Leader (2010-Present). Established collaboration between Departments of Urban Education and Mathematics and Statistical Sciences resulting in grant awards to both departments from the National Science Foundation and the Teacher Quality Program. Served as inter-institutional team leader among only 9 invited teams from across the state. This included review of over 40 products for statewide dissemination, January, 2013. Selected as one of four mathematics education faculty for statewide program evaluation interviews at the CCRI culminating conference, April 19, 2013. Invited to present at the “New Horizons in Texas STEM Education” conference on March 27-28, 2014.

University committees:

Search committee external for mathematics education lecturer, Department of Mathematics and Statistics, December, 2015.

Research and Scholarship Sub-Committee (July-August, 2014). Charged with analyzing the university’s strategic plan progress in the area of research and scholarship, and developing attainable goals for 2015-2020.

Academic Technology Committee (2013-Present). Coordinated catering and moderated two sessions, including a keynote presentation for the Academic Technology Conference, April 2-3, 2014.

Faculty Development Projects Committee (2014- Present). Co-Chairperson 2015.

Reviewed 32 faculty proposals in 2014 and 35 faculty proposals in 2015 and made recommendations to the committee for project funding.

College and Department committees:

CAEP Standard 3 Committee (2017-Present)

Department scholarship committee (2015-Present)

Student Success Committee (2013-Present). Provide mathematics content review sessions for EC-6 and 4-8 Generalist TExES certification tests at the end of each semester.

Curriculum Committee, September, (2009-Present)

MAT Committee (2012-Present)

Urban Education Scholarship Committee (Co-Initiator, 2012-Present)

Search committee chairperson for Urban Education science education tenure track position January-May, 2015.

Search committee member for College of Public Service Advisor Level 2 position, and for Special Education tenure-track position, 2015-2016.

Secondary Program Committee, (2012- Present)

Dr. Joe Kortz Scholarship Committee (2011-2013)

ACP Committee, September, (2011-2012; Committee Chair, Nov 2011-May 2012)

Unit Planning Committee (2010-2011)

E-Portfolio Committee (2010-2011)

Ad hoc New Program Committee (January-March, 2012)

Community Service

Project Director, 3rd grade numeracy intervention project using MALATI Fractions, Wharton K-8 Dual Language Academy, Houston Independent School District (2015-Present). This project includes mathematically at-risk 3rd grade students from 3 classrooms, in 1-hour sessions, once a week after school as part of the school's Improvement Plan for 2015-16.

Project Director, 3rd grade after-school 3D visualization project, Wharton K-8 Dual Language Academy, Houston Independent School District (2007 -Present). Over 100 children have benefited from this after-school project. The project was highlighted at the 2008 Houston Independent School District State of the Schools Annual Luncheon.

Project Director, University of Houston Downtown Teacher Quality Mathematics Leadership Project (2012-2014). Over 1,500 students in high-needs urban middle schools have been impacted by the project through the development of inquiry-based learning in classrooms taught by participant teachers.

Guest presenter at Cunningham Middle School, Galena Park ISD, in UHD graduate first-year teacher, Amber White's classroom, using the Giant Triangles to develop visualization and measurement skills for approximately one hundred ten 7th grade students (December 19, 2013)

Professional Service and Consulting

Doctoral dissertation committee, Murat Akarsu, under Dr. Signe Kastberg, Purdue University, Indiana. (2017-

Invited PD presenter, UHD/HISD Spain Teachers Mathematics Workshop, 9:15AM-11:15AM (March 4, 2017)

Invited PD presenter, Katy ISD, Taylor HS and Maide Creek HS Geometry teachers, Giant Triangles, 7:30 AM-2:00 PM (January 23, 2017)

Invited reviewer, National Research Foundation, South Africa, for Dr. Mudaly (June, 2016)

Guest presenter at Wharton K-8 Academy, Houston ISD, making sense of children's Number Levels according to the research of Murray and Le Roux; and, developing appropriate word problems to help raise children's number levels. (August 19, 2015)

Professional support for high school teacher, Diane Wu, using the Geometry course pack to teach her Geometry courses at The SMIC Private School, 169 Qing-Tong Road, Pudong New Area, Shanghai, China 201203 (July, 2013-January, 2015)

Professional consulting for ConnocoPhillips Rice University Applied Mathematics Program (AMP!) (URL: <http://sst.blogs.rice.edu/amp/>) as a mathematics education specialist for an integrated development program for middle mathematics and science school partner teachers. Developed, co-wrote and led integrated workshop activities; provided reflections on the program; wrote a white paper on addressing the numeracy gap in middle schools (June-July, 2014).

Guest presenter at Jane Long Middle School, Houston ISD, in UHD-graduate first-year teacher, Patricia Accavallo's 6th grade classroom, using the Giant Triangles to develop visualization skills for about 80 students (April 29, 2014)

Guest presenter at Cunningham Middle School, Galena Park ISD, in UHD-graduate first-year teacher, Amber White's classroom, using the Giant Triangles to develop visualization and measurement skills for about one hundred ten 7th grade students (December 19, 2013)

International Dynamic, Explorative, and Active Learning (IDEAL) Conference scientific committee. First conference, Northeastern Turkey, July 2-5, 2012. (2012-Present)

Professional Developer and Program Designer: 3rd grade after-school 3D visualization project, Wharton K-8 Dual Language Academy, Houston Independent School District (2007 -Present)

Doctoral dissertation committee, Tracy Scholz, under Professor Cheryl Craig, University of Houston, College of Education (2012)

Professional development and classroom support, Ryan Middle School, Houston Independent School District, 6th grade mathematics classroom (2010 -2011)

HISD Mathematics Science Task Force (August -September, 2005)

Advisory Board Member, Supporting Urban Science and Mathematics Educators (SUSME), University of Houston (2005-2006)

Special Campus Intervention Team (SCIT) approved by the Texas Education Agency (TEA) to provide recommendations for improvement for Kashmere High School, HISD (2005)

HISD Ad hoc committee on Literacy in the High Schools (2004)

Regional MATHCOUNTS Committee Teacher Representative (1996 -2003). Established protocol for regional practice competitions with a focus on "success for all participants." Hosted and facilitated practice competitions for over two-hundred students from the greater Houston area.

Faculty Advisory Committee Chairperson (1995-1997). Lanier Middle School, Houston Independent School District.

MATHCOUNTS Sponsor (1993-2003). Lanier Middle School, Houston Independent School District. School teams qualified for state level competition every year, taking first place in 1997.

MATHCOUNTS Texas State Team Coach, 1997. State team placed 15th in the National MATHCOUNTS Competition, May 1997, Washington, DC.

Grants

Pending: NSF Design Research K-12 collaboration, An Examination of the Challenges and Supports of Induction-Year Middle and High School STEM Teachers.09.01.2018-08.31.2020 (\$449,957). Co-PI with Cheryl Craig (PI), Texas A & M University, College Station, TX. Submitted Dec. 2017.

UHD College of Public Education Scholarly Innovation Award, *Transforming Geometric Thinking Within Methods Courses for Teaching*, August, 2017 – August, 2018 (\$2,360).

UHD College of Public Education Curricular Innovation Award, *Co-Teaching Learning Environment: Pre-Service Bilingual Generalists Explore Their Language and Math Identities in a Required Math Methods Course*. August, 2017 – August, 2018. (\$2,500). Co-Investigator with Dr. Laura Mitchell, Department of Urban Education, UHD.

NSF Robert Noyce Scholarship Program: *Collaborative Research: Understanding Robert Noyce Teacher Scholarship Outcomes in Texas*, July 1, 2016 - June 30, 2019. (\$49,847), Co-Principal Investigator with Dr. Judith Quander (PI), UHD.

ESPRIT de Corps: Expanding STEM Professionals' Roles in Teaching, September 2015-July, 2020, funded by the National Science Foundation (\$1,444,643); Co-Principal Investigator.

University of Houston Downtown Teacher Quality Mathematics Leadership Project, February, 2012-April, 2014, funded by the Texas Higher Education Coordinating Board's Teacher Quality Program (\$226,851): Principal Investigator/Director.

Recruiting and Preparing UHD Mathematics Majors for Houston-Area Classrooms: The UHD Noyce Mathematics Teacher Scholarship Program, August, 2011-July, 2016 (extended to July 2018), funded by the National Science Foundation (\$1,079,257); Co-Principal Investigator.

Transforming Mathematics Courses for Urban Pre-Service Teachers (TMC-UPT), September, 2010- May, 2011, funded by The College and Career Readiness Initiative: Mathematics Faculty Collaborative, to support collaboration between UE faculty and CMS faculty who teach mathematics content courses for students entering the UE certification program (\$10,000); Principal Investigator.

Geometry Module, Texas Higher Education Coordinating Board, Teacher Quality Type A Grant (\$296,133), Project manager and co-author. Conceptualized, and managed the writing of a geometry program to develop quality high school teachers in higher-education institutions throughout the state (2004). This program forms the basis for the course pack updated in and re-designed for the MATH 3303 course in Fall, 2012 and Fall 2013, and in 2013-2014 for the course materials used by Geometry teacher, Diane Wu, at The SMIC Private School, 169 Qing-Tong Road, Pudong New Area, Shanghai, China 201203

Polyhedral Triangles. September, 2000-March, 2001. Toshiba America Foundation funded the purchase of seventy-five custom-made equilateral triangles for a school-wide three-dimensional geometry project (\$5,000); Principal Investigator.

Honors, Awards

Nominated for the 2016 UHD Excellence in Scholarship/Creative Activity Award.

Pi Mu Epsilon National Honorary Mathematics Society, Texas Nu Chapter induction in recognition of superior achievement in the field of mathematics, April 30, 2013

University of Houston Downtown Faculty Development Award, 2013 (\$3,100)

Houston Council of Teachers of Mathematics Middle School Mathematics Teacher of the Year, 1996

Edyth May Sliffe Award (American Mathematics Competitions), 1998

Professional Affiliations

International Group for the Psychology of Mathematics Education

North American Chapter of the International Group for the Psychology of Mathematics Education

National Council of Teachers of Mathematics

Association of Mathematics Teacher Educators

American Educational Research Association

National Council of Supervisors of Mathematics

Houston Council of Teachers of Mathematics