

2023

CURRICULUM VITAE

JILL ADLER

1. PERSONAL DETAILS

Name: Jillian Beryl Adler, nee Smidt.

Current Positions: Professor of Mathematics Education, Division of Mathematics Education, University of the Witwatersrand. South Africa

Honorary Professor, IOE, UCL's Faculty of Education and Society, UK

Honorary Research Fellow, Department of Education, Oxford University, UK

Place of Birth: Johannesburg, South Africa.

Citizenship: South African

Home Address: 10 Thrushton Place, 22 Westwood Avenue, Melrose North, Johannesburg, 2196 South Africa

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2. ACADEMIC QUALIFICATIONS

PhD 1996. University of the Witwatersrand (Rand), entitled: *Secondary teachers' knowledge of the dynamics of teaching and learning mathematics in multilingual classrooms.*

M.Ed 1985. University of the Witwatersrand (Rand). Dissertation, **with distinction**, entitled *Mathematics by newspaper in South Africa: junior secondary mathematics for adults through the medium of a newspaper.*

B.Sc 1972. University of the Witwatersrand. Mathematics III and Psychology III.

3. PROFESSIONAL QUALIFICATIONS

S.T.D 1973. Secondary Teacher's Diploma. University of Cape Town (mathematics; guidance).

4. SELECTED ACADEMIC DISTINCTIONS/FELLOWSHIPS/AWARDS

- 2022 **Rosi and Max Varon Fellowship**, Department of Science Teaching, Weizmann Institute of Science (WIS), Israel. March – May, Visiting Scientist, WIS.
- 2015 International Commission on Mathematical Instruction ICMI **Hans Freudenthal Medal**, in recognition of a major cumulative program of research and its impact.
- 2015 **Svend Pedersen Lecture Award 2015**, Department of Mathematics and Science Education, University of Stockholm, for research that has made a significant and lasting contribution to the Department’s research and teacher education.
- 2012 **Academy of Sciences of South Africa (ASSAf) Gold Medal** for Science in the service of society.
- 2009-2019 **SARChI Chair** of Mathematics Education
- 2009 **NSTF award for innovation** in mathematics and science education, Marang Centre
- 2007 **Fellow of the Academy of Sciences of South Africa**
- 2003 University of the Witwatersrand, **Vice Chancellor’s Research Award** for 2003.
- 2003 University of the Witwatersrand, **Vice Chancellor’s Academic Citizenship Team Award** for 2003 – Awarded to the Mathematics Education Unit that in 2003 was under my leadership.

5. ELECTED EXECUTIVE POSITIONS

5.1. INTERNATIONAL

President ICMI (International Commission on Mathematical Instruction) 2017-2020

Vice President ICMI 2003-2009

Member International Committee of the Psychology of Mathematics Education (PME) Group (1994 – 1998)

5.2. NATIONAL

STEM Commission Chair ASSAf – Academy of Science of South Africa 2009 - 2011

Executive Committee member SAARMSTE 1993-4.

(Southern African Association for Research in Mathematics, Science and Technology Education)

6. INTERNATIONAL JOURNAL EDITORIAL BOARDS

Since 1998 I have served terms on the editorial board of:

- Educational Studies in Mathematics
- For the Learning of Mathematics
- Journal for Research in Mathematics Education
- Journal of Mathematical Behavior
- Research in Mathematics Education.
- Mathematics Education Research Journal

7. ACADEMIC AND PROFESSIONAL POSTS

Current

- 2023 – 2024 **Honorary Research Fellow**, Department of Education, Oxford University. [see here](#)
 2023 – 2024 **Honorary Professor**, Dept of Curriculum, Pedagogy & Assessment, IOE, UCL's Faculty of Education and Society
 2020 – 2023 **Professor of Mathematics Education**, Extended Contract - University of the Witwatersrand (Wits) School of Education.

Past

- 2010 – 2019 **SARChI – South African Research Chair of Mathematics Education**, University of the Witwatersrand (Wits) School of Education.
 2008 **Director:** Marang Centre for Mathematics and Science Education, Wits School of Education.
 2014 – 2022 **Visiting Professor of Mathematics Education**, King's College London
 2007 – 2014 **Professor of Mathematics Education**, Kings College London (jointly held with position of Professor of Mathematics Education at Wits);
 2000-2002 **Chairperson: School of Science Education**, Faculty of Science, Wits.
 1997-2009 **Wits University/Sentrachem Foundation Chair of Mathematics Education Development**, School of Mathematics, and later School of Education
 Jan-Jun 1997 **Acting Head** Department of Education, Wits
 Apr 1994 **Senior Lecturer**, Department of Education, Wits
 1989 - 1994 **Lecturer**, Education Department, Wits
 1986 - 1988 **Senior Lecturer**, Department of Professional Studies (Maths) Johannesburg College of Education.
 1977 - 1985 **SACHED TRUST**, Non-Profit Education Trust, Johannesburg
 1976: **Secondary Mathematics Teacher**, King David High School, Johannesburg.
 1974 - 1975 **Secondary Mathematics Teacher**, Harold Cressy High School, Cape Town.

8. RESEARCH: RATING - NRF - National Research Foundation Rating 2018 - 2023: A1

There is a researcher rating system in South Africa, conducted by the National Research Foundation – funding for research from the NRF is linked to ratings. The description of an A1 rating in this process is provided below. Further details of the research rating system in use in South Africa, together with descriptions of each level of rating, can be found on www.nrf.ac.za. All academics are re-rated on a 6 yearly basis.

A	Researchers who are unequivocally recognised by their peers as leading international scholars in their field for the high quality and impact of their recent research outputs.	A1	A researcher in this group is recognized by all reviewers as a leading scholar in his or her field internationally for the high quality and wide impact (i.e. beyond a narrow field of specialisation) of his/her recent research outputs.
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9. RESEARCH GRANTS, PROJECTS AND FUNDING

- 2021 – 2022 **Postdoctoral fellowships grants** – University of the Witwatersrand – R700 000 p.a.
- 2015 - 2019 **SARChI five-year research and development Chair** in mathematics education – *continuation* – R16 000 000 (R3 450 000+ p.a.) Extension of 2010-2014 project (see below)
- 2015 - 2016 **Oppenheimer Memorial Trust** research award, R650 000
- 2010 - 2014 **FRF - SARChI Chair project** 2010 – 2014 R12 500 000 (R2 500 000 p.a.); supplementary funding for components of this project (R1 500 000 p.a.) from NRF, Sasol foundation, RMB and APEXhi

This was funding for a five-year research and development project – called the Wits Maths Connect Secondary Project. We worked with the mathematics teachers in ten schools serving low income communities with the goal of enhancing teaching through professional development, that in turn impacts learner attainment. Success in this phase led to a second phase of funding 2015 – 2019 and extension to 80 schools. See <https://www.witsmathsconnectsecondary.co.za/people/adler-j>

- 2009-2012 **Kings College London** research funding (GBP 2000)
- 2007–2011 **NRF Five year grant 2007 – 2011** R1 650 000 (R350 000 p.a)
- 2005-2007 **MARANG Centre for Mathematics and Science Education** – R4 700 000

During 2003, I led the development of a new Centre for Mathematics and Science Education, which was passed by Senate at the end of 2003. In 2004 I played a central role raising R3.5 million from one of the major banks in South Africa, supplementing R1.2 million from the University itself to fund the Centre and a Chair in Science Education for 2005 - 2007. As acting director of the Centre in the first months of 2005, I was instrumental in building a vision and strategic plan for research and development in the Centre. Restructuring in the School of Education in 2005 placed the Centre within a wider Division of Mathematics and Science Education of which I became the head, and Professor Setati (now Phakeng) was appointed Centre Director. On her move to Unisa at the end of 2007, I returned to the position of Director. The Centre won the prestigious NSTF award for contribution to science education in 2009.

- 1996-2006 **National Research Foundation (NRF) research project team leader**

Between 1996 and 2006 I secured funding as principal grant holder for ongoing research in teacher education, and specifically mathematical knowledge for teaching, from **the National Research Foundation**. Each of the studies involved a research team. A list of projects follows.

2003 - 2006: QUANTUM research project. Mathematical knowledge for teaching: in depth case studies of mathematics in use in teacher education across three sites of practice (2003-5); followed by studies of mathematics in use in school classrooms across sites of practice (2005-2006).

2002: Mathematics teachers' conceptual knowledge – a survey of how this is conceptualised and operationalised in current formalised Level 6 and 7 mathematics and mathematics education courses across institutions in South Africa. This was a national collaboration involving co-investigators from UPE, UCT, UND and Univen, and formed the research arm of QUANTUM (see above)

2000: Textbook usage in Grade 7 and 9 Mathematics classrooms.

1997 – 1999: Mixed Mode FDEs And Their Effects

Three year team-based follow-up study from the base line done in 1996 to investigate changes in FDE teachers practices in mathematics, science and English language teaching.

1996: A Base-line Study of the FDE programme in Mathematics, Science and English Language Teaching.

2000–2006 British Council Higher Education Links Project leader

A link programme with Southbank University and Professor Stephen Lerman for research, staff and programme development in Mathematics Education.

10. KEYNOTE/PLENARY INVITED ADDRESSES

Since 1993 I have delivered over 50 keynote and/or plenary addresses at conferences across the world. A selection is presented here.

Reflections on a ten-year content-specific research linked professional development project for leveraging educational change. DZLM/ ICMI International Colloquium: Content-specific Mathematics Teacher Education Research: Approaches and Findings. Berlin. 1 July, 2022

Thinking-with-Mandela on leveraging educational change. SAERA's Annual Nelson Mandela Legacy Lecture. Opening online lecture South African Education Research Association (SAERA) Annual Conference. 10 November 2021. <https://www.saera.co.za/2021-lecture-by-prof-jill-adler/>

Exemplifying and explanatory communication – two key tasks of teaching and a framework for their use in mathematics teaching. Mathematics Teacher Association (MTA) Conference, India, online plenary lecture 3 September, 2021.

Language responsive (mathematics) professional development: How do content and context matter? XI Simposio de Matematica Y Education Matematica, Colombia. Online plenary lecture, 18 February 2021

Levering educational change: A story from a 10-year research linked professional development project - the contributory role of a Mathematics Teaching Framework (an ideational / meta-resource). French Mathematics Education (FME) Conference, online opening plenary, 21 January 2021

Intervening in a context of diversity and inequality to lever educational change: Insights from a professional development project in lower secondary (Gr 8 – 9) mathematics in South Africa. Webinar, Curriculum issues in Israel, 2 September, 2020

Revisiting resources as a theme in mathematics education. Keynote, Third International Conference on Mathematics Textbook Research and Development, ICMT3, Sept 2019
<http://icmt3.math.upb.de/>

The what, why and how of working with exemplification in mathematics teacher education. Keynote. Inter-America Committee of Mathematics Education (CIAEM/IACME) XV, University of Medellin, Colombia. May, 2019. <https://ciaem-redumate.org/ciaem/?q=en/principal>

The Wits Maths Connect Secondary Project 2010-2019: A research linked professional development project and its impact. Invited talk. March 2019, Beijing Normal University. 100 participants (a graduate student conference)

Professional Learning Communities and Professional Development in Mathematics Education.

Invited plenary presentation, COMSTEDA 16, Maun, Botswana, November 6, 2018

Teaching for learning in the Senior Phase: What can ‘we’ do? Invited keynote address. Gauteng Department of Education. Senior Phase Summit. Johannesburg, October 1, 2018

Learning to teach algebra through Lesson Study. Invited symposium presentation, University of Geneva, June 8, 2017.

Mathematics teachers learning from PD focused on subject matter knowledge. Invited plenary presentation at the Pan African Congress of Mathematicians (PACOM), Rabat, Morocco, 2-7 July 2017

Tools and take-up: Insights from a study of mathematics professional development in South Africa. Plenary presentation at the Greek Mathematics Education Research Conference, 1-3 December 2017.

One framework, multiple practices: The case for a common discursive resource. Invited lecture as Freudenthal awardee. International Congress of Mathematics Education. Hamburg, July 2016.

Mathematics education research in South Africa – a review and critical reflection Keynote address, Southern African Association for Research in Mathematics, Science and Technology Education (SAARMSTE), Pretoria, Jan 2016.

Researching and doing professional development using a shared discursive resource. Keynote address, Mathematics Education Research Group of Australasia (MERGA) Conference, Sunshine Coast, June 2015.

From mathematics and language, to mathematical knowledge for teaching and back again: A (South African) research journey. Svend Pederson Award lecture, University of Stockholm, May 2015.

Bridging contexts, connecting research and practice: Reflections on mathematics teacher education and professional development. Plenary presentation, Eighth British Congress of Mathematics Education (BCME8), Nottingham, April 2014

Access, equity and knowledge-in-use: Reflections from a research-based teacher professional development project in post-Apartheid South Africa. Moore Distinguished Lecture, North Carolina State University, September 2012.

Access, equity and knowledge-in-use: Reflections from a research-based teacher professional development project in post-Apartheid South Africa. Plenary address. Colloquium: Forms of Education and Emancipation, Rennes, France, May 2012

Collaboration and emergence: Reflections on mathematics education in Africa. Invited panel presentation. Plenary Panel. La didactique des mathématiques: approches et enjeux. Hommage à Michele Artigue, 31 May-2 Jun, 2012

Professional Knowledge Matters in Mathematics Teaching. Invited plenary, Section 19, The International Congress of Mathematicians, Hyderabad, India, August 2010.

CV_Adler 2023

Mathematics for teaching matters. Keynote, Australian Mathematics Teachers' Association, Perth, July 2009.

Mathematical knowledge for teaching and concerns for equity. Plenary panel. MSRI (Mathematical Sciences Research Institute) Conference on Mathematical knowledge for teaching K-8, Asilomar, California. May 2005

Researching mathematics teacher education: The QUANTUM project and its progress. Plenary presentation, 13th SAARMSTE (Southern African Association for Research in Mathematics, Science and Technology Education). Windhoek, Namibia. January 2005.

Research on Mathematics Teacher Education: Mirror Images of an Emerging Field. Plenary Presentation by ICME-10 Survey Team 3 - Professional Development of Mathematics. Copenhagen. July 2004. Chair of Survey team: Jill Adler, South Africa. Other members: Deborah Loewenberg Ball, U.S.A.; Konrad Krainer, Austria; Fou-Lai Lin, Taiwan; Jarmila Novotna, Czech Republic

Researching inside teacher education: The QUANTUM project, its context, some results and implications. Presidential panel on research into learning and practice in teacher education. Paper presented to the AERA conference in San Diego, April 2004.

Mathematics and teaching in Mathematics Teacher Education: A situated and South African perspective. Plenary address. Third Conference on the Teaching of Mathematics and Science. University of Lisbon, Department of Education and Research Centre of the Faculty of Sciences. Portugal. Jan 2004

Social practice theory: some issues in mathematics teacher education. Plenary speaker at a conference entitled: Social constructivism, socioculturalism and social practice theory: relevance and rationalisations in mathematics education. Lillehammer, Norway. March 2000

Widening the lens, changing the focus: Researching language practices in mathematics classrooms. Invited by the International Congress of Mathematics Education (ICME-9) Programme Committee to deliver a Regular Lecture (sub-plenary) in Tokyo, Japan, August 2000.

What counts? Resourcing mathematical practice in South African schools. Keynote speaker at the Canadian Mathematics Education Research Group. Ontario. Canada. June 1999.

Key teaching dilemmas in multilingual secondary mathematics classrooms in South Africa. Keynote address to conference entitled Mathematics and Culture, Royal Danish School of Educational Studies, Copenhagen, Denmark. March 1999

(Re)distribution of resources = equity? Plenary address. 1st International Conference on Mathematics Education and Society (MEAS1). Nottingham University. United Kingdom. September 1998.

Resources as a verb: recontextualising resources in mathematics education. Plenary address. 22nd International Congress of the Psychology of Mathematics Education (PME22). Stellenbosch. South Africa, July 1998.

11. PUBLICATIONS

11.1. Peer-reviewed journal papers.

Planas, N., Adler, J. & Mwaadzaangati, L. (2022) What is mathematics teaching talk for? A response based on three sites of practice in mathematics education. *ZDM Mathematics Education*.
<https://doi.org/10.1007/s11858-022-01452-5>.

Adler, J., Mwaadzaangati, L. and Takker, S. (2022), "From defining as assertion to defining as explaining meaning: teachers' learning through theory-informed lesson study", *International Journal for Lesson and Learning Studies*, Vol. ahead-of-print No. ahead-of-print. <https://doi.org/10.1108/IJLLS-02-2022-0029>

Pillay, V., Adler, J., & Runesson Kempe, U. (2022). The sequencing and pairing of examples in the midst of sameness and difference: Opening opportunities to learn. *Pythagoras*, 43(1), a667.
<https://doi.org/10.4102/pythagoras.v43i1.667>

Mwaadzaangati, L., Adler, J., & Kazima, M. (2022). Mathematics Mediation Means and Learner Centredness: Insights from 'traditional' Malawian Secondary School Geometry Lessons. *African Journal of Research in Mathematics, Science and Technology Education*.
[doi:10.1080/18117295.2022.2055910](https://doi.org/10.1080/18117295.2022.2055910)

Pournara, C., & Adler, J. (2022). Revisiting school mathematics in pre-service secondary teacher education: Purposes, opportunities and challenges. *International Journal of Science and Mathematics Education* 20, 391-410. [doi:10.1007/s10763-021-10150-9](https://doi.org/10.1007/s10763-021-10150-9)

Adler, J. (2021). Levering change: the contributory role of a mathematics teaching framework. *ZDM - Mathematics Education*, 1-14. [doi:10.1007/s11858-021-01273-y](https://doi.org/10.1007/s11858-021-01273-y)

Adler, J. (2019). Learning about mathematics teaching and learning from studying rituals and ritualization? A commentary. *Educational Studies in Mathematics*. <https://doi.org/10.1007/s10649-018-9876-6>

Ntow, F.D. & Adler, J. (2018) Identity resources and mathematics teaching identity: an exploratory study. *ZDM Mathematics Education* 51, 419-432. <https://doi.org/10.1007/s11858-019-01025-z>

Adler J. (2017) Mathematics in mathematics education. *South African Journal of Science*. 113(3/4). Art. #a0201, 3 pages. <http://dx.doi.org/10.17159/sajs.2017/a0201>

Adler, J., Alshwaikh, J., Gcasamba, L. & Essack, R. (2017) Mathematics education research in South Africa 2007-2015: Review and reflection. *African Journal of Research in Mathematics, Science and Technology Education*, 21, 1, 1-14. <http://dx.doi.org/10.1080/18117295.2016.1265858>

Ronda, E. & Adler, J. (2017) Mining mathematics in textbook lessons. *International Journal of Science and Mathematics Education*. 15, 1097–1114. DOI: 10.1007/s10763-016-9738-6.

Lerman, S. & Adler, J. (2016) Policy and standards debate: Mapping changes in assessment. *Research in Mathematics Education*, 18, 2, 182-199.

Le Roux, K. & Adler, J. (2016) A critical discourse analysis of practical problems in a foundation mathematics course at a South African university. *Educational Studies in Mathematics*. 91, 2, 227-264. DOI 10.1007/s10649-015-9656-5

Pournara, C., Hodgen, J., Adler, J., & Pillay, V. (2015). Can improving teachers' knowledge of mathematics lead to gains in learners' attainment in mathematics? *South African Journal of Education*, 35(3), 10. doi: 10.15700/saje.v35n3a1083

Adler, J., & Ronda, E. (2015). A framework for describing Mathematics Discourse in Instruction and interpreting differences in teaching. *African Journal of Research in Mathematics, Science and Technology Education*. 19, 3, 237-254. doi:DOI:10.1080/10288457.2015.1089677)

Pillay, V. & Adler, J. (2015) Evaluation as key to describing the enacted object of learning. *International Journal for Lesson and Learning Studies*. 4, 3, 1-22

Parker, D. & Adler, J. (2014) Sociological tools in the study of knowledge and practice in mathematics teacher education. *Educational Studies in Mathematics*. 87, 2, 203-219.

Adler, J., Hossain, S., Stevenson, M., Clarke, J., Archer, R. and Grantham, B. (2014) Mathematics for teaching and deep subject knowledge: Voices of Mathematics Enhancement Course students in England. *Journal of Mathematics Teacher Education*. 17, 2, 129-148.

Hossain, S., Mendick, H., & Adler, J. (2013). Troubling 'understanding mathematics-in-depth': its role in the identity work of student-teachers in England. *Educational Studies in Mathematics*, 84, 35-48. doi: DOI 10.1007/s10649-013-9474-6

Adler, J. & Patahuddin, S (2012) Recontextualising items that measure mathematical knowledge for teaching into scenario based interviews: an investigation. *Journal of Education*. 56, 1 – 12.

Venkat, H., & Adler, J. (2012). Coherence and connections in teachers' mathematical discourses in instruction. *Pythagoras*, 33(3), Art. #188, 8 pages. <http://dx.doi.org/10.4102/pythagoras.v33i3.188>

Huillet, D., Adler, J. and Berger, M. (2011) Teachers as researchers: Placing mathematics at the core. *Education as Change*. 15,1, 17-32.

Miranda, H & Adler, J. (2010) Re-sourcing mathematics teaching through professional development. *Pythagoras*, 72, 14 – 26.

Adler, J (2010) Mathematics for teaching matters. *Education as Change*. 14(2), 123-135.

Venkat, H., Adler, J., Setati, M., Rollnick, M. and Vhurumuku, E. (2009) Mathematics and science education research, policy and practice in South Africa: What are the relationships? *The African Journal for Research in Mathematics Science and Technology Education. Special Issue*. November. Pp. 2-27.

Adler, J., Pournara, C., Taylor, D., Thorne, B. and Moletsane, G. (2009) Mathematics and science teacher education in South Africa : a review of research, policy and practice in times of change. *The African Journal for Research in Mathematics Science and Technology Education. Special Issue*. November. Pp. 28-46.

Rollnick, M., Adler, J. and Setati, M. (2009) The institutional location of research in mathematics and science education in South Africa. *The African Journal for Research in Mathematics Science and Technology Education. Special Issue*. November. Pp. 115-130.

Adler, J. (2009) Mathematics teacher education in South Africa: A research agenda focused on the mathematical work of teaching across diverse contexts. *The Indian Educational Researcher*. 3, 1, 5 – 20 (ISSN0974-2123) published by Stella Matutina College of Education, Ashok Nagar, Chennai 600083, India.

Adler, J. (2009) A methodology for studying mathematics for teaching. *Reserches en Didactique des Mathématique*. 29, 1, 33 – 57

Venkatakrishnan, H. and Adler, J. (2008) Expanding the foci of activity theory: Accessing the broader contexts and experiences of mathematics education reform. *Educational Review*. 60, 2, 127 – 140.

Kazima, M., Pillay, V and Adler, J. (2008) Mathematics for Teaching: Observations from two case studies. *South African Journal of Education*. 28, 283-299

Davis, Z., Adler, J., and Parker, D. (2007) Identification with images of the teacher and teaching in formalized in-service mathematics teacher education and the constitution of mathematics for teaching. *Journal of Education*, 42, 33 - 60.

Adler, J and Pillay, V. (2007). An Investigation into Mathematics for Teaching: Insights from a case. *African Journal of Research in Mathematics, Science and Technology Education*. 11, 2, 87-108

Adler, J. and Davis, Z. (2006). Opening another black box: Researching mathematics for teaching in mathematics teacher education. *Journal for Research in Mathematics Education*. 37, 4, 270 – 296.

Kazima, M. and Adler, J. (2006) Mathematical knowledge for teaching: adding to the description through a study of probability in practice. *Pythagoras*. 63, 36 – 48.

Adler, J. (2005) Mathematics for teaching: What is it and why is it important that we talk about it? *Pythagoras*. 62. 2 – 11.

Adler, J., Ball, D., Krainer, K., Lin, F.L. & Novotna, J. (2005) Reflections on an emerging field: Researching mathematics teacher education. *Educational Studies in Mathematics*. 61, 3, 359 – 381.

Parker, D. and Adler, J. (2005) Constraint or catalyst: The regulation of teacher education in South Africa. *Journal of Education*. 36. 59-78.

Adler, J. and Setati, M. (2005) Mathematics as filer of equity – an ‘old’ story and new telling. Response to Kahn, A Class Act. *Perspectives in Education*. 23. 3. 149 – 152.

Mwakapenda, W. and Adler, J. (2003) Using concept mapping to explore student understanding and experiences of school mathematics. *African Journal of Research in Mathematics, Science and Technology Education*. 7, 51-62.

Setati, M., Adler, J, Reed, Y. and Bapoo, A. (2002) Incomplete journeys: code-switching and other language practices in multilingual classrooms in South Africa. *Language and Education*. 16. 128-149

Adler, J. (2002) Lessons from and in curriculum reform across contexts? *The Mathematics Educator*. 12. 2. 1-5. (Guest editorial)

Setati, M., and Adler, J. (2001) Between languages and discourses: Code-switching practices in primary mathematics classrooms in South Africa. *Educational Studies in Mathematics*. 43. 243-269.

Dickson, M. and Adler, J. (2001) Textbook use in grades 7 and 9 mathematics classrooms. *Pythagoras*, 54.

Adler, J., Graven, M. and Pournara, C (2000). Integration within and across mathematics. *Pythagoras*, 53. 2-13.

Adler, J. (2000) Social practice theory and mathematics teacher education: a conversation between theory and practice. *Nordic Mathematics Education Journal (NOMAD)* 8. 3. 31-53.

Adler, J. and Reed, Y. (2000) Researching teachers' take-up from a formal in-service professional development programme. *Journal of Education*, 25. 192-226.

Adler, J. (2000) Conceptualising resources as a theme for mathematics teacher education. *Journal of Mathematics Teacher Education*. 3. 3. 205-224.

Adler, J. (1999) Seeing and seeing through talk: The teaching dilemma of transparency in multilingual mathematics classrooms. *Journal for Research in Mathematics Education*. 30. 1. 47-64.

Adler, J. (1998) A language of teaching dilemmas: unlocking the complex multilingual secondary mathematics classroom. *For the Learning of Mathematics*, 18. 1. 24-33.

Adler, J. (1997) A participatory-inquiry approach and the mediation of mathematical knowledge in a multilingual classroom. *Educational Studies in Mathematics*, 33. 235-258.

Adler, J. (1997) Professionalism in Process: Mathematics teacher as researcher from a South African perspective. *Educational Action Research*, 5. 1. 87-103..

Adler, J. (1995) Dilemmas and A Paradox: Secondary Mathematics Teachers' Knowledge of their teaching in multilingual classrooms. *Teaching and Teacher Education* , 11. 3. 263-274.

Adler, J. (1995) Insights from mathematics education developments in South Africa in transition. *Mathematics Education Research Journal*, 6. 3. 101-112.

Adler, J. (1993) Moving beyond apartheid or more of the same? Political dimensions of national examining at the standard 7 level with Siza Shongwe. *Pythagoras*, 32. 29-34.

Adler, J. (1992) Into the Future: An analysis of the working document for mathematics, Std 2 – 4. *Pythagoras*, 28. 26-32.

Adler, J. (1991) How do you do it? politics and practice in mathematics education in South Africa. *Perspectives in Education*, 13. 2. 21-31.

Adler, J. (1989) Distance Education. with Night, G, Davis, J and Harrison, K in *Zentralblatt fur Didaktik der Mathematik*, 6. 209-215.

Adler, J. (1989) The calculator in the junior secondary classroom: tool or tyrant. *Pythagoras*, 21. 26-28.

Adler, J. (1988) Newspaper-based mathematics for adults in South Africa. *Educational Studies in Mathematics* 19. 1. 59-78.

11.2. Books

Adler, J. & Sfard, A. (Eds.) (2017) *Research for educational change: Transforming researchers' insights into improvement in mathematics teaching and learning*. Routledge: London.

Vithal, R., Adler, J. and Keitel, C. (Eds.) (2005) *Researching mathematics Education in South Africa: Perspective, practices and possibilities*. HSRC. Pretoria.

Adler, J. and Reed, Y. (Eds.) (2002) *Challenges of teacher development: An investigation of take-up in South Africa*. Co-edited with Yvonne Reed. Van Schaik: Pretoria.

Adler, J. (2001) *Teaching mathematics in multilingual classrooms*. Kluwer Academic Publishers. Dordrecht.

11.3. Chapters in Books

Adler, J. (2021). Content and context specificity matter in the 'how' of language responsive mathematics teacher professional development. In N. Planas, C. Morgan, & M. Schütte (Eds.), *Classroom research on mathematics and language: Seeing learners and teachers differently* (pp. 77-100): Routledge.

Venkat, H., & Adler, J. (2021). Mediating mathematics in instruction: trajectories towards generality in "traditional" teaching. In S. Zehetmeier, D. Potari, & M. Ribeiro (Eds.), *Professional development and knowledge of mathematics teachers* (pp. 5-23). Oxon: Routledge.

Adler, J. & Pournara, C. (2020) Exemplifying with variation and its development in mathematics teacher education. In Potari, D. & Chapman, O. (Eds.) *International Handbook of Mathematics Teacher Education: Volume 1. Knowledge, Beliefs, and Identity in Mathematics Teaching and Teaching Development*: Sense.

Adler, J., & Alshwaikh, J. (2019). A Case of Lesson Study in South Africa. In R. Huang, A. Takahashi, & J. da Ponte (Eds.), *Theory and practice of lesson study in mathematics*. Advances in Mathematics Education. (pp. 317 – 342). Dordrecht: Springer. https://doi.org/10.1007/978-3-030-04031-4_16

Leshota, M. & Adler, J. (2018) Disaggregating a Mathematics Teacher's Pedagogical Design Capacity. In L. Fan, L. Trouche, C. Qi, S. Rezat, & J. Visnovska (Eds) *Research on Mathematics Textbooks and Teachers' Resources: Advances and issues*. (pp. 89-118). Springer: Switzerland

Adler, J. & Pillay, V. (2017) Mathematics education in South Africa. In Adler, J. & Sfard, A. (Eds.) *Research for educational change: Transforming researchers' insights into improvement in mathematics teaching and learning*. (pp. 9-24) Routledge: London

Adler, J. & Pillay, V. (2017) Setting the scene: School M, Mr T, the lesson and the data. In Adler, J. & Sfard, A. (Eds.) *Research for educational change: Transforming researchers' insights into improvement in mathematics teaching and learning*. (pp. 25-37) Routledge: London.

Adler, J. & Ronda, E. (2017) Mathematical discourse in instruction matters. In Adler, J. & Sfard, A. (Eds.) *Research for educational change: Transforming researchers' insights into improvement in mathematics teaching and learning*. (pp. 64-81) Routledge: London.

- Adler, J. & Ronda, E. (2017) A lesson to learn from. In Adler, J. & Sfard, A. (Eds.) *Research for educational change: Transforming researchers' insights into improvement in mathematics teaching and learning*. (pp. 133-143) Routledge: London.
- Essien, A. & Adler, J. (2016) Operationalising Wenger's communities of practice theory for use in multilingual mathematics teacher education contexts. In Halai, A. & Clarkson, P. (Eds.) *Teaching and learning mathematics in multilingual classrooms*. (Pp 173-193). Sense. Rotterdam.
- Adler, J. (2015) Turning mathematical knowledge for teaching social. In Jorgensen, R. & Gates, P. (Eds.) *Shifts in the Field of Mathematics Education: Stephen Lerman and the turn to the social*. Springer. Dordrecht. Pp. 139-150
- Ronda, E., & Adler, J. (2014). Mathematical examples, tasks, and talk: A discursive lens for studying and crafting lessons. In S. Ulep, A. Punzalan, M. Ferido, & R. Reyes (Eds.), *Lesson study: Learning more together, growing in practice together* (pp. 249-280). Philippines: UP NISMED.
- Adler, J. and Venkat, H. (2014) Teachers' mathematical discourse in instruction: Focus on examples and explanations. In Venkat, H., Rollnick, M., Loughran, J. and Askew, M. (2014) *Exploring mathematics and science teachers' knowledge: Windows into teacher thinking*. Oxford: Routledge. Pp. 132-146.
- Adler, J. & Venkat, H. (2014) Mathematical knowledge for teaching. In Lerman, S. (Ed.), *Encyclopedia of Mathematics Education*, DOI 10.1007/978-94-007-4978-8, Springer Science+Business Media, Dordrecht
- Venkat, H. & Adler, J. (2014) Pedagogical content knowledge within Mathematical knowledge for teaching. In Lerman, S. (Ed.), *Encyclopedia of Mathematics Education*, DOI 10.1007/978-94-007-4978-8, Springer Science+Business Media, Dordrecht
- Adler, J. (2012) Knowledge resources in and for school mathematics teaching. In G Gueudet, B., Pepin, B, and Trouche, L. (Eds.) *Mathematics Curriculum Materials and Teacher Development: From text to 'lived resources'*. Springer. Chapter 1, invited chapter. DOI 10.1007/978-94-007-1966-8_1,
- Adler, J. and Davis, Z. (2011) Modelling teaching in mathematics teacher education and the constitution of mathematics for teaching. In Ruthven, K. and Rowland, T. (Eds.) *Mathematical knowledge in teaching*. Springer. Invited chapter. Pp.139-160
- Adler, J. (2010) La conceptualisation des ressources. Apports pour la formation des professeurs de mathématiques. In G. Gueudet et L. Trouche (dir.), *Ressources vives, le travail documentaire des professeurs, le cas des mathématiques*. Presses Universitaires de Rennes. Chapter 1. Pp.7 – 18.
- Adler, J (2009) A language of teaching dilemmas: unlocking the complex multilingual secondary mathematics classroom. In Bishop, A. (Ed.) *International handbook on mathematics Education Vols I – IV*. Springer. Reprint of Adler 1998.
- Adler, J. and Jaworski, B. (2008) Public Writing in the Field of Mathematics Teacher Education, in Even, R. and Ball, D. (Eds.) *The professional education and development of teachers of mathematics: The 15th ICMI Study*. Springer Publications: USA (Chapter 3.1, pp. 249-254)
- Adler, J. and Huillet, D. (2008) The social production of mathematics for teaching. In Sullivan, P., & Wood, T. (Eds.) (2008). *International handbook of mathematics teacher education: Vol. 1*.

Knowledge and beliefs in mathematics teaching and teaching development. Rotterdam, The Netherlands: Sense Publishers. (pp. 195-222).

Series reference: Wood, T. (Series Ed.), Jaworski, B., Krainer, K., Sullivan, P., & Tirosh, D. (Vol. Eds.) (2008). International handbook of mathematics teacher education. Rotterdam, The Netherlands: Sense Publishers.

Adler, J. (2007) Mathematical practices in and across school contexts. In *Perspectives on Mathematical Practices. Proceedings of the Brussels PMP2002 Conference.* Chapter 12. Logic, Epistemology and the Unity of the Sciences Series. Kluwer. Pp. 191-213.

Adler, J (2006) Mathematics teacher education in post-apartheid South Africa: A focus on the mathematical work of teaching across contexts. In Borba, M. (Ed.) *Trends in Mathematics Education, Brazil (in Portuguese).* (pp. 45-64). São: PauloAutêntí.

Clarke, D; Shimizu, Y; Ulep,S ;Gallos,L ; Sethole,G; Adler J; and Vithal, R. (2006) Cultural Diversity and the Learners' Perspective: Attending to Voice and Context. In F.K.S. Leung, K.D. Graf and F.J. Lopez-Real (Eds.) *Mathematics Education in Different Cultural Traditions- A comparative Study of East Asia and the West.* Springer Publications. U.S.A. pp. 353 - 380.

Sethole, G., Goba, B., Adler, J. and Vithal, R. (2006) Fine-Tuning a Language of Description for Mathematics Items which Incorporate the Everyday. In Clarke, D.J., Keitel, C., & Shimizu, Y. (Eds.) (2006). *Mathematics Classrooms in Twelve Countries: The Insider's Perspective.* Rotterdam: Sense Publishers. [PB ISBN 90-77874-95-X HB ISBN 90-77874-99-2] Chapter 8. pp. 117 - 130

Adler, J. (2005) Holding the past, living the present and imagining and creating a future: Trends and Challenges in Research Mathematics Teacher Education, In Vithal, R., Adler, J. and Keitel, C. (Eds) *Researching mathematics Education in South Africa: Perspectives, practices and possibilities.* HSRC. Pretoria.

Adler, J. and Lerman, S. (2003) Getting the description right and making it count: Ethical practice in mathematics education research. In Bishop, A., Keitel, C., Kilpatrick, J. and Leung, F (Eds.) *Second International Handbook of Mathematics Education.* Kluwer Educational Publishers: Dordrecht. Pp. 441-470.

Adler, J. (2002) Global and local challenges of teacher development. In Adler, J. & Reed, Y (Eds.) *Challenges of teacher development: An investigation of take-up in South Africa.* Van Schaik: Pretoria. Chapter 1, pp. 1-16.

Adler, J. and Reed, Y. (2002) Researching teachers' "take-up" from a formal in-service professional development programme. In Adler, J. & Reed, Y (Eds.) *Challenges of teacher development: An investigation of take-up in South Africa.* Van Schaik: Pretoria. Chapter 3, pp. 36-52.

Adler, J., Reed, Y., Lelliott, T. and Setati, M. (2002). Availability and use of resources: A dual challenge for teacher education. In Adler, J. & Reed, Y (Eds.) *Challenges of teacher development: An investigation of take-up in South Africa.* Van Schaik: Pretoria. Chapter 4, pp. 53-71.

Setati, M., Adler, J. Reed, Y and Bapoo, A. (2002) Code-switching and other language practices in Mathematics, Science and English Language classrooms in South Africa. In Adler, J. & Reed, Y (Eds.) *Challenges of teacher development: An investigation of take-up in South Africa.* Van Schaik: Pretoria. Chapter 5, pp. 72-93.

Adler, J., Slonimsky, L and Reed, Y. (2002) Subject-focussed inset and teachers' conceptual knowledge-in-practice. In Adler, J. & Reed, Y (Eds.) *Challenges of teacher development: An investigation of take-up in South Africa*. Van Schaik: Pretoria. Chapter 8, pp. 135-152.

Adler, J (2001) Re-sourcing practice and equity: A dual challenge for mathematics education. In Atweh, B., Forgasz, H. & Nebres, B (Eds.) *Sociocultural research in mathematics education: An international perspective*. Lawrence Erlbaum Associates. Pp185-200.

Adler, J. (1998) Lights and limits: Recontextualising Lave and Wenger to theorise knowledge of teaching and of learning school mathematics. In Watson, A. (Ed.) *Situated cognition and the learning of mathematics*. Centre for Mathematics Education Research. University of Oxford, Department of Educational Studies. Oxford. pp. 161-177.

Crawford, K and Adler, J. (1996) Teachers as researchers in mathematics education. In Keitel, C and Bishop A (Eds) *International Handbook of Research in Mathematics Education*. Kluwer. Dordrecht. Pp.1187-1206.

Adler, J. (1991) Vision and constraint: politics and national mathematics curricula in a changing South Africa' in Pimm, D and Love, E (Eds) *Teaching and Learning School Mathematics*. Hodder and Stoughton with Open University Press. pp 153-170.

11.4. Edited Special Editions – Journals

ZDM – Mathematics Education, Special Issue, Teachers interactions with resources, languages and cultures. Co-editors J Adler, L Trouche (France) and J Remillard (USA). In preparation

For the Learning of Mathematics, Special Issue: Knowing and Using Mathematics for Teaching. 29 (3), November, 2009. Co-editors J Adler and D Ball (USA).

African Journal for Research in Mathematics, Science and Technology Education, Dec, 2009. Co-editors M Setati, J Adler and M Rollnick.

11.5. Publications in refereed conference proceedings

I do not, as a rule, include my name as co-author on conference papers of my research students, despite supervisory support provided for these. Hence there are numerous research papers authored by my students with my supervisory input, but these do not appear here.

Adler, J., Planas, N., Trouche, L. & Remillard, J. (2022) Mathematics teachers' interactions with resources through a language lens. In Fernández, C., Llinares, S., Gutiérrez, A., & Planas, N. (Eds.) (2022). *Proceedings of the 45 th Conference of the International Group for the Psychology of Mathematics Education* (Vol. 1 pp. 89-118). Alicante, Spain. PME.

Mwadzaangaati, L., Takker, S., & Adler, J (2022). Teacher learning about exemplification in geometry through lesson study. In Fernández, C., Llinares, S., Gutiérrez, A., & Planas, N. (Eds.) (2022). *Proceedings of the 45 th Conference of the International Group for the Psychology of Mathematics Education* (Vol. 3 pp. 219-226). Alicante, Spain. PME.

Takker, S., Ratnayake, I., Pournara, C., & Adler, J. (2022). Framework for analysing secondary mathematics teachers' development of geometric reasoning. In Fernández, C., Llinares, S., Gutiérrez, A., & Planas, N. (Eds.) (2022). *Proceedings of the 45 th Conference of the International Group for the Psychology of Mathematics Education* (Vol. 4 pp. 83-90). Alicante, Spain. PME.

Ratnayake, I., Takker, S., Adler, J., & Pournara, C. (2022). Developing tools to analyse teachers' mathematical knowledge for teaching basic geometry. 12th Congress of the European Society for Research in Mathematics Education (CERME12), Bolzano, Italy, 02 – 05 Feb 2022.

Mwadzaangati, L. & Adler, J. (2022). Learning about language responsive teaching through Lesson Study in Malawi. *Paper to be presented at the Annual Conference of the British association for international & comparative education, 13-15 September. University of Edinburgh, United Kingdom.*

Pournara, C., Adler, J., Takker, S., Mwadzaangaati, L., Ratnayake, I., & Planas, N. (2022). A framework for promoting geometric reasoning: Rationale, constitutive elements and initial applications. 30th Conference of the Southern African Association for Research in Mathematics, Science and Technology Education (SAARMSTE), South Africa, 18 – 20 Jan, 2022.

Takker, S., Ratnayake, I., Adler, J. & Pournara, C. (2021). Tasks for examining secondary teachers' knowledge of basic geometry. The 6th Africa Regional Congress of ICMI on Mathematical Education (AFRICME), 25 – 27 Oct 2021.

Mwadzaangaati, L., Adler, J. & Takker, S. (2021). What do we learn from teachers as they start to participate in lesson study? The 6th Africa Regional Congress of ICMI on Mathematical Education (AFRICME), 25 – 27 Oct 2021.

Ronda, E. & Adler, J. (2019) Subject matter knowledge and the quality of mathematics made available to learn: Some hypotheses In Graven, M., Venkat, H., Essien, A. & Vale, P. (Eds). (2019). Proceedings of the 43rd Conference of the International Group for the Psychology of Mathematics Education (Vol 3). (Pp.257-264) Pretoria, South Africa: PME.

Adler, J. & Alshwaikh, J. (2019) Working with example sets: A productive focus in Lesson Study. *Eleventh Congress of the European Society for Research in Mathematics Education*, Utrecht University, Feb 2019, Utrecht, Netherlands. **(hal-02422415)**

Adler, J. (2017) Mathematics Discourse in Instruction (MDI): A discursive resource as boundary object across practices. In Kaiser, G. (Ed.), Proceedings of the 13th International Congress on Mathematical Education, ICME-13 Monographs, pp 125 – 143, DOI 10.1007/978-3-319-62597-3_9.

Adler, J. 2017). Mathematics Teachers' "take-up" from professional development. In Th. Zachariadis, D. Potari, G. Psycharis (eds.). Proceedings of the 7th Greek Conference of the Greek Association of Researchers of Mathematics Education: Mathematical knowledge and teaching practices (pp. 24-35), Athens: GARME <http://enedim7.gr/>

Ntow, F. & Adler, J. (2017) An exploration into teachers' take up of professional development teaching resources, In B. Kaur, W.K. Ho, T. L. Toh, & B. H. Choy (Eds) *Proceedings of the 41st Conference of the International Group for the Psychology of Mathematics Education*, Vol. 3, pp. 313-320. Singapore: PME

Alshwaikh, J. & Adler, J. (2017). *Researchers and teachers as learners in Lesson Study*. In M. K. Mhlolo, S. N. Matoti, & B. Fredericks (Eds.), *SAARMSTE Book of Long Papers* (pp. 2-14). Free State, South Africa: Central University of Technology

Alshwaikh, J., Adler, J. (2017). *Tensions and dilemmas as source of coherence*. MES9 Conference, Greece, Aril 2017, Long paper, electronic publication.

Venkat, H. & Adler, J. (2016). Frameworks supporting the coding and development of mathematics teachers' instructional talk in South Africa. In S. Zehetmeier, B. Rösken-Winter, D. Potari, & M. Ribeiro (Eds.), *Proceedings of the Third ERME Topic Conference on Mathematics Teaching, Resources and Teacher Professional Development (ETC3, October 5 to 7, 2016)* (pp. xx-yy). Berlin, Germany: Humboldt-Universität zu Berlin, p.228-237.

Adler, J. (2015) Researching and doing professional development using a shared discursive resource and an analytic tool. In M. Marshman, V. Geiger, & A. Bennison (Eds.). *Mathematics education in the margins* (Proceedings of the 38th annual conference of the Mathematics Education Research Group of Australasia), pp. 25–40 . Sunshine Coast: MERGA.

Adler, J. & Ronda, E. (2014) An analytic framework for describing teachers' mathematics discourse in instruction. In Nichol, C., Liljedahl, P., Oesterle, S. & Allan, D. (Eds.), *Proceedings of the joint meeting of PME 38 and PME-NA 36 (Vol 2)* (pp.9-16). Vancouver, Canada: PME.

Adler, J. (2013) Access, equity and knowledge in use in secondary school mathematics in South Africa. In Berger, M., Brodie, K. Frith, V. & Le Roux, K. (Eds.), *Proceedings of the 7th International Mathematics Education and Society Conference (MES7), Vol. 2*, pp. 183-192.

Adler, J. & Pattahudin, S. (2012) ICME – Using scenarios validated as measures to explore SMK in an interview setting. The 12th International Congress on Mathematical Education (ICME-12), July 2012. Seoul, South Korea.

Le Roux, K. & Adler, J. (2012). Talking and looking structurally and operationally as ways of acting in a socio-political mathematical practice. In Tso, Tai-yih (Ed.), *Proceedings of the 36th Conference of the International Group for the Psychology of Mathematics Education*, 3 (pp. 51-58). Taipei: PME.

Adler, J. (2012) The interdependence of power and mathematics in opportunities to learn: A response to Marta Civil. In Tso, Tai-yih (Ed.), *Proceedings of the 36th Conference of the International Group for the Psychology of Mathematics Education*, Vol 1. Taipei: PME.

Adler, J. (2010) Professional Knowledge Matters in Mathematics Teaching. *Proceedings of the International Congress of Mathematicians*, Hyderabad, India.

Adler, J. Hossain, S., Stevenson, M., Clarker, J., Archer, R., and Grantham, B. (2009) Interpretations of, and orientations to, “understanding mathematics in depth”: students in MEC programmes across institutions. *Proceedings of the British Society for Research in Learning Mathematics (BSRLM)*, November.

Adler, J (2009) Mathematics for teaching matters. In Hurst, C. et al (Eds.) *Mathematics: It's Mine*. Proceedings of the 22nd Biennial conference of the Australian Association of Mathematics Teachers INC. AAMT: Adelaide. Pp. 3 – 16. *Invited keynote, being developed for publication in national journal (Submitted to Education as Change)*.

Parker, D. & Adler, J. (2009) Researching mathematics teacher education with sociological tools. In Tsekaki, M. et al (Eds.) *Proceedings of the 33rd Conference of the International Group for the Psychology of Mathematics Education (PME)*. Thessalonika, Greece. July 2009. Volume 1. *Being developed for publication in international journal (Research in Mathematics Education)*.

Adler, J. and Davis, Z. (2006) Imaginary-symbolic relations, pedagogic resources, and the constitution of mathematics for teaching in in-service mathematics teacher education. In Novotná, J., MoraováH., Krátká, M and Stehliková, N. (Eds.) *Proceedings of the 30th Conference of the International Group of the Psychology of Mathematics Education*. (Pp.2-9 – 2-16). Prague: Faculty of Education, Charles University.

Kazima, M. and Adler, J. (2006) Mathematical knowledge for teaching: Adding to the description through a study of probability in practice. In Novotná, J., MoraováH., Krátká, M and Stehliková, N. (Eds.) *Proceedings of the 30th Conference of the International Group of the Psychology of Mathematics Education*. (Pp. 3-417 – 3-424). Prague: Faculty of Education, Charles University. (Published in Pythagoras)

Adler, J. (2006) Mathematics teacher education and teaching in diverse contexts: Insights from South African experience and research. Homi Baba Centre for Mathematics and Science Education. Mumbai. India (Published as book chapter – Portuguese)

Davis, Z., Parker, D. and Adler, J (2005). Imaginary and symbolic identification in formalised in-service mathematics teacher education and the differential constitution of mathematics for teaching. *Proceedings of the Annual Kenton Conference*. Rhodes University. October 2005.

Adler, J. (2005) Researching mathematics teacher education: The QUANTUM project and its progress. In Kasanda, C., Muhammed, L., Akpo, S. and Ngololo, E. (Eds). *Proceedings of the 13th Annual Conference of the Southern African Association for Resesearch in Mathematics, Science and Technology Education*. Windhoek: University of Namibia. Pp. 11 – 24.

Adler, J., Davis, Z., Kazima, M., Parker, D. & Webb, L. (2005). Working with students' mathematical productions: elaborating a key element of mathematical knowledge for teaching. In Chick, H.L. & Vincent, J. L (Eds.) *Proceedings of the 29th Conference of the International Group for the Psychology of Mathematics Education*. Department of Science and Mathematics Education. Melbourne University. Australia. Volume 2, pp.1-8.

Parker, D., Davis, Z. and Adler, J. (2005) Mathematics for teaching and competence: Pedagogies in formalised in-service mathematics teacher education in South African Universities. In Goos, M., Kanen, C. and Brown, R. (Eds.) *Proceedings of the 4th International Mathematics Education and Society Conference*. Centre for Learning Research. Griffith University. Australia. Pp. 268-277.

Adler, J. (2004) Research and Mathematics Teacher Education in Ten years of SAARMSTE: Trends and Challenges. In Buffler, A. and Laugksch, R.C. (Eds.) *Proceedings of the 12th Annual Meeting of the Southern African Association for Research in Mathematics, Science and Technology Education (SAARMSTE)*. University of Cape Town.

Adler, J. (2004) The mathematical work of teaching. In Strasser, R., Brandell, G., Grevholm, B. and Helenius, O. (Eds.) *Educating for the Future: Proceedings of an International Symposium on Mathematics Teacher Education*. Stockholm. The Royal Swedish Academy of Sciences. Pp. 103-118.

Adler, J. (2003) Mathematical knowledge for teaching: Structural and conceptual issues in a formal degree programme. In Jaffer, S. and Burgess, L. (Eds.) *Proceedings of the Ninth National Congress of the Association for Mathematics Education in South Africa (AMESA)* Cape Town, July 2003. Cape Town. AMESA. Pp. 95 – 108.

Adler, J. and Davis, Z. (2003) Evaluation and the obstacle to the reproduction of school mathematics. In Jaffer, S. and Burgess, L. (Eds.) *Proceedings of the Ninth National Congress of the Association for*

Mathematics Education in South Africa (AMESA) Cape Town, July 2003. Cape Town. AMESA. Pp. 109-122.

Mwakapenda, W. and Adler, J. (2002) "Do I still remember?" Using concept-mapping to explore student understanding of key concepts in secondary mathematics. . In Malcolm, C. and Lubisi, C. (Eds.) *Proceedings of the 10th Annual Conference of the Southern African Association for Research in Mathematics, Science and Technology Education (SAARMSTE)*. University of Natal, Durban. Pp II 60 – 67.

Adler, J. (2002) Inset and mathematics teachers' conceptual knowledge in practice. In Malcolm, C. and Lubisi, C. (Eds.) *Proceedings of the 10th Annual Conference of the Southern African Association for Research in Mathematics, Science and Technology Education (SAARMSTE)*. University of Natal, Durban. Pp II 1-9.

Adler, J. and Reed, Y. (2001) Learner performance and fuzzy generalisations: Key issues in professional development research. In *Proceedings of the 25th International Conference for the Psychology of Mathematics Education (PME25)*, Utrecht. Vol 2, pp. 9-16 .

Adler, J. and Lerman, S. (2001) Ethical practice in mathematics education research: Getting the description right and making it count. In *Proceedings of the 25th International Conference for the Psychology of Mathematics Education (PME25)*, Utrecht. Vol 2, pp. 17-24.

Adler, J. (2000) What counts? Resourcing mathematical practice in South African schools. In McLoughlin, J. G. (Ed.) *Proceedings of the Canadian Mathematics Education Study Group. 1999 Annual Meeting*. Memorial University of Newfoundland. Pp. 45-56.

Adler, J. (1998) Resources as a verb: recontextualising resources in mathematics education. In Olivier, A and Newstead, K. (Eds.) *Proceedings of the 22nd Annual Conference of the International Group for the Psychology of Mathematics Education. Vol 1*. University of Stellenbosch, Faculty of Education. Pp. 1-18.

Adler, J. (1998) (Re)distribution of resources = equity? In Gates, P. (Ed) *Proceedings of the 1st International Mathematics Education and Society Conference (MEAS1)*. Centre for Mathematics Education, University of Nottingham. Nottingham. Pp 7-8.

Adler, J. (1997) The dilemma of transparency: Seeing and seeing through talk in the mathematics classroom. In Pehkonen, E (Ed.) *Proceedings of the 21st International Conference for the Psychology of Mathematics Education (PME21)*, Vol 2, pp. 1-8.

Adler, J. (1997) Teaching cases and dilemma language: a potentially powerful tool in mathematics teacher education. In Sanders, M (Ed.) *Proceedings of the Fifth Annual Meeting of the Southern African Association in Mathematics and Science Education*. University of the Witwatersrand. Johannesburg. Pp. 197-203.

Adler, J. (1996) Lave and Wenger's social practice theory and the teaching and learning of mathematics. In Puig, L (Ed) *Proceedings of the 20th International Conference for the Psychology of Mathematics Education (PME20)*, Vol 2, Valencia University, Spain pp. 3-10.

Adler, J. (1995) Participatory, inquiry pedagogy, communicative competence and mathematical knowledge in a multilingual classroom: A vignette. In Meira, L and D Carraher (Eds) *Proceedings of*

the 19th International Conference for the Psychology of Mathematics Education (PME19), Vol 3, Universidade Federal de Pernambuco, Recife, Pp 208-215.

Adler, J (1994) One Teacher, One Method? In *Proceedings of the First National Convention of AMESA (Association of Mathematics Education in South Africa)*, University of the Witwatersrand, Johannesburg, Pp. 1-11.

Adler, J. (1992) Action research and the theory-practice dialectic: insights from a small post graduate study inspired by activity theory. In *Proceedings of the 16th. Psychology of Mathematics Education Conference*, Vol 1, Durham, Pp. 41-49.

12. POST-DOCTORAL FELLOWSHIPS

I have been host to excellent postdoctoral fellows mostly at Wits in South Africa and also in the UK at King's College London

2021 – 2022	Dr Lisnet Mwadzaangati (Lecturer, University of Malawi; PhD University of Malawi/Stavanga University Norway)
2021 – 2022	Dr Iresha Ratnayake (Sri-Lanka, PhD University of Auckland, New Zealand)
2017 - 2019	Dr Moneoang Leshota (University of Lesotho, PhD from Wits, SA)
2018 - 2019	Dr Shadrack Moalosi (Botswana, PhD from Wits SA)
2016	Dr Forster Ntow – Ghana (PhD from University of Minnesota, USA)
2016-2017	Dr Jehad Alshwaick – Palestine (PhD from Institute of Education, London)
2014-2015	Dr Erlina Ronda – Philippines (PhD from Catholic University, Australia)
2013	Dr Thuli Nkambule - Swaziland (PhD from UNISA, South Africa)
2011-2012	Dr Sitti Pattahudin – Indonesia (PhD University of Queensland, Australia)
2009	Dr Helena Miranda - Namibia (PhD from Alberta, Canada)
2007-2009	Dr Sarmin Hossain – UK – fellowship at Kings College London
2004 -2005	Dr Mercy Kazima - Malawi (PhD, University of Leeds, UK)
2000-2001	Dr Willie Mwakapenda -Malawi (PhD, Deakin University Australia)

13. DOCTORAL STUDENTS

Since 1998, when I took on my first supervision of PhD students, 20 students have graduated at Wits University. I was been co-supervisor to 2 students at King's College London, UK, and the South African advisor to 3 students studying at Ahlborg University Denmark, and 1 at Cambridge University, UK

Wits Graduates

Lizeka Gcasamba	Lesson(ing) study in pre-service secondary mathematics teacher education (<i>Jan 2016 Graduated Dec 2022</i>)
Benedette Ainemane	The role of teachers in developing learners' mathematical discourse (<i>Jan 2014 Graduated 2021</i>)
Nontsiki Luxomo	Explaining explanation through recontextualising practices (<i>Jan 2012 Graduated 2019</i>)
Regina Essack:	Exploring Grade 11 learner routines on function from a commognitive perspective (<i>Jan 2011, graduated 2016</i>)
Shadrack Moalosi:	The constitution of mathematics for teaching in professional development and teachers professional knowledge: what is the relationship? (<i>Jan 2010, graduated 2015</i>)

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- Moneoang Leshota: The textbook – teacher relationship: The case of functions in Grade 10. (*October 2009, graduated 2015*)
- Vasen Pillay: Teacher development through focus on examples: the case of functions in Gr 10 (*Apr 2010, graduated 2014*)
- Patricia Phiri Student teachers knowledge and positioning with respect to learner thinking in mathematics teaching. (*July 2008, FT, graduated 2014*)
- Craig Pournara Mathematics-for-teaching in pre-service mathematics teacher education: The case of financial mathematics. (*PT 2006; Graduated March 2013*)
- Lynn Bowie: The production of school geometry in the new FET curriculum in South Africa. Proposal submitted and passed. (FT 2006, PT 2010, *Graduated November 2013*)
- Tony Essien Pedagogical Practices of Teacher Educators Preparing pre-service teachers for teaching mathematics in multilingual classrooms. Co supervision with Professor Setati. (FT 2007, PT, 2010, *Graduated June 2013*)
- Kate Bennie A critical examination of the Discourse practices used by students when solving real – world problems in an undergraduate access course in Mathematics (*PT 2006; Graduated in November 2011*)
- Bruce Tobias From textual problems to mathematical relationships: Case studies of secondary students and discourses at play in interpreting word problems. Upgrade from M Sc research report to PhD. (*Part-time, graduated July 2010*).
- Diane Parker: Knowledges and discourses in mathematics teacher education in higher educational institutions in SA in the early 21st century. Part-time. (*2001; graduated April 2009*)
- Dany Huillet: Evolution through participation in a research group of Mozambican secondary school teachers' personal relation to limits of functions. (*2001, Graduated 2007*)
- Lorraine Marnewick: Curriculum Change in Northern Province Primary Schools. Co-supervisor with Prof Pam Christie, Griffiths University, Australia. Part-time. (*1997, Graduated. 2005*)
- Godfrey Sethole: Learner's perspectives on mathematics in the new curriculum (*2001, Graduated. 2005*) *Deceased.*
- Mellony Graven: Mathematics teachers' learning, communities of practice the centrality of Confidence. Part-time (*1998, Graduated June 2002*)
- Thabiso Nyabanyaba: Examining examination: The O Level mathematics examination in Lesotho and the impact of recent trends on Basotho students' epistemological access. (*1998, Graduated June 2002*) *Full-time.*
- Mamokgethi Setati: Language practices in multilingual classrooms in South Africa. Part-time (*1998, Graduated June 2002*)
- Margot Berger: The appropriation of mathematical objects by undergraduate mathematics students: A study. Part-time (*1998, graduated April 2003*)

King's College London graduates

Damon Vosper Singleton – co-supervisor Dr Clive Kanes, major supervisor – graduated 2014
Frieda Vatileni – co- supervisor Prof Eva Jablonka – graduated 2016

Associate / advisor South African supervisor

Surgeon Xolo – PhD student at Cambridge University – Graduated December 2012.

South African advisor - thus assistant supervisor - to three students who were part of a PhD programme run by Prof Olé Skovsmose from the Royal Danish Institute in Copenhagen, Denmark. All three are from Kwa-Zulu Natal, all registered at Aalborg University for their degrees.

Dr B Naidoo	(Graduated 1999)	
Dr R Vithal	(Graduated 2000)	all part-time
Dr N Dlamini	(Graduated 2001)	

14. Masters graduates at Wits (in reverse date order)

- Rakgokong, L 'Language and the Construction of Meaning Associated with Division in Senior Primary Mathematics'. Graduated 1993. M Sc
- De Wee, K 'A Critical Examination of Decision-making structures in a DET College of Education'. Co-supervised with Shirley Pendlebury. Graduated 1993. M Ed
- Diphofa, J 'Teachers Perceptions of Their Role in Curriculum Development: a Comparative Study of Two Soweto Primary Schools'. Co-supervised with S Pendlebury. Graduated 1993. M Ed
- Dikgomo, P 'Misconceptions of Inequalities in Std 8: a constructivist perspective'. Graduated 1994. M Sc.
- Akoojee, S 'A Critical Analysis of Teaching Practice as a Component of Initial Teacher Education at a College of Education in South Africa'. Co-supervision with S Pendlebury. Graduated 1995. M Ed.
- Brodie, K. 'Classroom Discourse and ownership of Mathematical Knowledge'. Graduated 1995, **with distinction. M Ed.**
- Scott, G 'Applicability of Mathematics in Technical Curricula'. Graduated 1996. M Ed.
- Setati, M 'Code switching and mathematical meaning in a Std 3 mathematics class'. Graduated 1996. M Ed.
- Berger, M 'The graphical calculator as a mediating sign in the learning of tertiary mathematics'. **Graduated with distinction**, August 1996. M Sc.
- Mnisi, P (co-supervisor Prof Pendlebury). Investigation of extent to which CAPME fosters reflective stance in its teachers. Graduated 1997. M Ed.
- Rademeyer, A 'Recognition of prior numeracy learning at ABE levels 1 and 2'. Graduated 1997. M Ed.
- Mphunyane, M 'Mathematics teachers' perceptions of their role in relation to ESL pupils' problems with language'. Graduated 1997. M Ed.
- Nyabanyaba, T Teachers' understanding of relevance as a curriculum concept. Graduated 1998 **with distinction**. M Ed.
- Khechane, N An investigation into an INSET mathematics project in Lesotho. Graduated 1998. M Ed.
- Dickson, M The internet and mathematics learning. Graduated 1999. M Sc
- Ramsing, V 'The extent to which MCPT teachers have changed in the direction the programme intended'. Graduated June 2000. M Ed.
- Mokapi, C Fraction conceptions in Grade 10 in Lesotho: a case study. Graduated 2001. M Sc.
- Mofolo, B. The mathematics textbook: prescriptive or enabling resource for teaching and learning. Registered part-time 2000. Graduated, 2003. M Sc.
- Tobias, B. Cultural models at work in the solving of algebraic 'word' problems. M Sc. (Registered part-time in 2002, **passed with distinction, upgraded to PhD in 2004**)
- Rodwell, L. Learners' experiences and perceptions of new assessment practices: A case study. M Sc. Part-time, graduated November 2006.
- Pillay, V. Mathematics for Teaching: The case of functions in Grade 10. M Sc. **Graduated with distinction, November 2006**

- Tatolo, T. Mathematical work of teaching: A case study of Grade 8 algebra in a private school in Johannesburg. *Graduated with distinction for research report, November 2007*
- Naidoo, S. Mathematical work of teaching: A case study of Geometry in Grade 10 in a suburban secondary school in Johannesburg. M Sc. *Graduated. 2008*
- Bennett, S. Mathematical work of teaching: A case study of Grade 7 fractions in a suburban primary school in Johannesburg. *Graduated 2008.*
- Luxomo, N. The constitution of the legitimate text in official and pedagogic discourse: The case of patterns in Grade 11. *Graduated 2011 (research report with distinction)*
- Bogdanova, M Object and meta-level learning of congruency in Grade 9. *Graduated November 2012 (research report with distinction)*
- Clarke, R. Exploring and describing growth points of learners as they encounter functions in equation form. **Graduated July 2014**
- Gcasamba, L. A discursive analysis of learners' mathematical thinking: The case of functions. *Graduated July 2014*
- Ramaisa, M. Investigating an intervention, informed by variation theory, into Grade 11 learners' interpretations of algebraic functions. *Graduated December 2014*
- Makhalyane, M. An investigation into competent teachers' choice and use of examples in teaching algebraic functions in Grade 11 in the South African context: A case of two teachers. *Graduated December 2015*

15. Honours graduates at Wits

Between 1989 when I joined the University, and 2005 when the Marang Centre was established (at which point I no longer took on honours students due to workload), I supervised 50 successful Honours level research projects, all in the field of Mathematics Education. Specifically,

- 2005: 5 B Sc Hons projects focussed on Unpacking Mathematics in My Teaching
- 2004: 6 B Sc Hons projects focused on Learners' conceptions of Area and Perimeter
- 2003: 5 B Sc Hons projects focused on Learners' conceptions of Area and Perimeter
- 2002: Sabbatical leave
- 2001: 4 B Ed Hons projects on various topics – see below
- 2000: 4 B Ed Hons projects in the field of mathematics education – see below
- 1997: one project
- 1989 - 1996: 25 B Ed Hons projects in the field mathematics education – see information below.

The work produced in and across **B Ed Hons project**, have spanned numerous topics of interest to students, and in many cases involved small-scale action research. Educational issues explored have included ethnomathematical practices in the teaching of mathematics, equitable pedagogic strategies, language and learning; other projects have been studies focused on a particularly mathematical topics (e.g. teaching fractions; exploring learners' conceptions).

Due to what is arguably a productive pedagogy in inducting first level graduate students into research, the projects have in the main been of high quality, and moreover, in the teachers' views effective in encouraging reflection on practice. The following are examples of some of the projects that have been completed.

- Action-research on the constraints on teaching and learning through games in the mathematics classroom
- A teaching experiment on the learning of the multiplication concept
- Using action research to evaluate my teaching

- Students' perceptions of the value of group discussion in their learning of mathematics in multilingual classrooms
- Grade 8 students' responses to and reasoning behind solutions to selected problems involving linear equations
- Grade 6 students' responses to and reasoning behind solutions to selected problems with decimal fractions.
- Grade 9 learners responses to and reasoning on the concepts of area and perimeter and their inter-relation
- Unpacking mathematics in my teaching: The case of functions in a Grade 10 class.

It is important to note here that the majority of teachers in the Honours programme are studying part-time. Most are teaching in multilingual and often economically disadvantaged schools. Their systematic study of their own teaching, and/or learners in their schools and classrooms has contributed not only to their own practice, but to increasing understanding of the different possibilities and constraints on mathematics education reform across our ranging conditions.

16. SELECTED ACADEMIC & PROFESSIONAL TEACHING EXPERIENCE, and CURRICULUM INNOVATION (including conceptualisation and development of formal professional development programmes in mathematics and science education).

In my now over 30 years as an academic, I have led curriculum innovation teams in relation to new degrees/diplomas at Wits University, particularly in **mathematics and science in-service teacher education**, and taught courses in **mathematics education** at Undergraduate and Postgraduate levels. I have also taught more general courses in **research methods** and **curriculum**. In my position as SARChI Chair of Mathematics Education, and through the research and development work with teachers across 6 districts in Gauteng schools, I have, with project colleagues, developed **16-day professional development courses for teachers, focused on subject knowledge for teaching**. These courses are elaborated on the WMCS website.

• Post Graduate: B Sc Honours in Mathematics and Science Education

In 2000-2001 I initiated and developed the curriculum for a new **Honours Programme in Science and Mathematics Education**, aimed at senior and leader teachers of these critical subjects in the secondary school system. This programme has been sustained and is now in its 13th year. The major motivation and incentive in this programme is the opportunity to extend teachers' subject knowledge in ways that are useful to teaching. Previous honours level programmes were either all educationally focussed with little attention to subject knowledge per se, or where subject knowledge was included, courses taken had to be the same as those studying pure mathematics at an honours level. This was inappropriate and fewer and fewer students selected to do these kinds of programmes.

Note: In its first four years, this programme ran as a partnership with the Gauteng Department of Education. The province provided full bursaries for Gauteng teachers accepted into the programme. The collaboration with the Provincial department at a time of rapid curriculum change in South Africa was extremely productive for both institutions and particularly for teachers whose professional development was actively supported by their employer. After a two-year break, the province once again funded this programme in a new three year cycle, beginning 2008. An independent evaluation of the programme in 2004 was very positive. A few hundred teachers in Gauteng Province have graduated from the programme, most of whom continue to play leadership roles in their schools. I am aware that a number of these teachers now hold positions in their district offices, or in university teacher education.

- **Further Diploma in Mathematics, Science and English Language Teaching FDE (now renamed as Advanced Certificate in Education – ACE).**

Between 1995 and 1997 I was Overall co-ordinator of curriculum development in the **Further Diploma of Education Programme for Mathematics, Science And English Language Teaching**, having led the process of establishing this new qualification in the University. This entailed leading a team of course developers in conceptualising an integrated and coherent curriculum for education, methodology and discipline courses, as well as developing ways in which these will operate at a distance. FDEs were relatively new initiatives in South Africa at that time – aimed at enabling disadvantaged teachers to upgrade qualifications - with little to guide the innovative programme. A particular challenge here was constructing mathematics courses that would extend teachers' subject knowledge in ways that were useful for teaching. FDEs have been replaced by ACEs Advanced Certificates in Education.

Both of these programmes entailed dealing with rules and procedures for new courses and degrees in the University, as well as the management of staff in them. Moreover, they have had and are continuing to have an impact on the development of teachers' mathematical knowledge, their pedagogic content knowledge and our knowledge of the specificity of mathematics for teaching.

At the same time as the FDE programme was initiated and developed, I set up and directed an NRF-funded research project for all academic staff in the program, to investigate teachers' learning in such a program. This research activity was instrumental in building research and teaching capacity across staff in the program, all of whom (except myself) were novice researchers

1998 – 2002 Initiated, conceptualised and ran a PhD program in Mathematics Education in the School of Mathematics/School of Science Education at Wits. This was a co-ordinated series of workshops during the year through which a cohort of PhD students were supervised and supported. By 2003, four of my students had completed and graduated with their PhDs, and all are now either Associate of Full professors and in senior university positions. Since the move of all mathematics education activity to the School of Education, and the establishment of the Marang Centre and an increase in suitably qualified mathematics education staff, including the graduates noted above, the running of the PhD programme has been taken over by other staff.

Masters: Since 1993 I have taught and conceptualized (see those marked *) a range of masters degree courses in mathematics education, mathematics and science education, and curriculum

- Teaching and learning algebra*
- Issues in Curriculum*
- Curriculum Issues in Mathematics Education*
- Language and Communication in Mathematics Education
- Theories of learning and teaching mathematics*
- Research methods and design in Mathematics and Science Education*