

## DOCTOR JILL FIELDING-WELLS

### Contact information

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### Work history

<i>Position</i>	<i>Organisation</i>	<i>Years</i>
Senior Research Fellow	Institute for Learning Sciences & Teacher Education, Australian Catholic University	2018-current
Research Fellow	School of Education, University of Queensland	2017-2018
Lecturer in Mathematics Education	Faculty of Education, University of Tasmania	2014-2016
Research Assistant	School of Education, University of Queensland	2009-2013
Sessional Tutor & Lecturer	School of Education, University of Queensland	2009-2013
Classroom Teacher	Education Queensland	2002-2011

### Education, fields of expertise and research supervision

#### Education

<i>Qualifications</i>	<i>Organisation</i>	<i>Completed</i>
Doctor of Philosophy	University of Queensland	2014
Master of Educational Studies	University of Queensland	2008
Bachelor of Education, Primary (Graduate)	Queensland University of Technology	2001
Graduate Diploma of Psychology	Charles Sturt University	2001
Bachelor of Business (Human Resources Management)	University of Southern Queensland	1992

#### Fields of educational expertise

- Primary mathematics education
- Argumentation
- Guided inquiry
- Evidence
- Student reasoning
- Student engagement
- Cognition
- Research methodology
- Educational assessment

#### Expertise in qualitative, quantitative and mixed research design methodologies

- Constructivist grounded theory
- Design-based research
- Case study

## Research supervision fields

- Mathematics education: student engagement and motivation, open-ended/complex tasks
- Cultural wellbeing in schools.

## Funded research

### Competitive grants

Years	Grants	Funding
2017-2019	ARC Discovery Project: <i>Developing classroom norms of inquiry-based learning in mathematics</i>	370 000
2017-2018	DAAD German-Australian Cooperative Grant: <i>Developing Complex Online Mathematical Tasks (DCOMT)</i>	50 000
2014-2016	Australian Maths and Science Partnership Program: <i>Towards Educating Mathematics Professionals Encompassing Science and Technology (TEMPEST)</i>	1 738 070
2015	Tasmanian Community Fund: <i>Promoting and supporting parent involvement in primary students' mathematics learning</i>	5 808

### Research consultancies

Years	Research	Funding
2017	<i>Mathematical Inquiry into Authentic Problems</i> , Australian Academy of Science	114 000
2015	<i>Dream Big: Evaluation of program for raising student aspirations (Burnie City Council, Tasmania)</i>	25 000

### Other funded research

Year	Research	Funding
2015	<i>Teaching Secondary Mathematics</i> , Department of Education, Tasmania	32 271
2014	<i>Teaching Secondary Mathematics</i> , Department of Education, Tasmania	44 163
2007	Minister's Award for Teacher Excellence, Research Grant awarded to a practicing teacher to undertake research in education: <i>Engaging Students through Inquiry Based Learning in Mathematics: Affect, Behaviour and Cognition</i>	25 000

## Publications

### Edited books

Fan, S., & Fielding-Wells, J. (Eds.), (2016). *What is next in educational research*. Rotterdam, Netherlands: Sense Publications.

### Books

Muir, T., Livy, S., Bragg, L., Clark, J., Wells, J., & Attard, C. (2017). *Engaging with mathematics through picture books*. Albert Park, Australia: Teaching Solutions.

Allmond, S., Wells, J., & Makar, K. (2010). *Thinking through mathematics: Engaging students with inquiry-based learning. Book 1, Ages 6-8*. Carlton South: Education Services Australia.

Allmond, S., Wells, J., & Makar, K. (2010). *Thinking through mathematics: Engaging students with inquiry-based learning. Book 2, Ages 8-10*. Carlton South: Education Services Australia.

Allmond, S., Wells, J., & Makar, K. (2010). *Thinking through mathematics: Engaging students with inquiry-based learning. Book 3, Ages 10-13*. Carlton South: Education Services Australia.

### Book chapters

Geiger, V., Yasukawa, K., Fielding-Wells, J., Bennison, A., & Sawatzki, C. (accepted Feb 2020). Facets of numeracy: Teaching, learning and practices. In J. Way, J. Anderson, J. Bobis, H. McMaster, K.

- Cartwright, & C. Attard (Eds.), *Research in mathematics education in Australasia: 2016-2019*. New York: Springer.
- Emery, S., & Fielding-Wells, J. (2018). Fluid methods to make sense of an unknown: An emergent grounded theory study of cultural wellbeing. In D. Kember & M. Corbett (Eds.), *Structuring the thesis - Matching method, paradigm, theory and findings*. Singapore: Springer.
- Fielding-Wells, J. (2018). Scaffolding statistical inquiries for young children. In A. Leavy, M. Marotheris-Meletiou, & E. Paperistodemou (Eds.), *Statistics in early childhood and primary education: Supporting early statistical and probabilistic thinking*. Singapore: Springer. DOI 10.1007/978-981-13-1044-7\_7
- Watson, J., Fitzallen, N., Fielding-Wells, J., & Madden, S. (2018). The practice of statistics. In D. Ben-Zvi, K. Makar, & J. Garfield (Eds.), *International handbook of research in statistics education*. Dordrecht, Netherlands: Springer.
- Fielding-Wells, J., & Makar, K. (2015). Inferring to a model: Using inquiry-based argumentation to challenge young children's expectations of equally likely outcomes. In A. Zieffler & E. Fry (Eds.), *Reasoning about uncertainty: Learning and teaching informal inferential reasoning* (pp. 89-115). Minneapolis, MN: Catalyst Press.
- Makar, K., & Fielding-Wells, J. (2011). Teaching teachers to teach statistical investigations. In C. Batanero, G. Burrill, & C. Reading (Eds.), *Teaching statistics in school mathematics-challenges for teaching and teacher education* (Vol. 14, pp. 347-358). Netherlands: Springer.

## Articles

- Fielding-Wells, J. (2018). Dot plots and hat plots: Supporting young students emerging understandings of distribution, center and variability through modelling. *ZDM Mathematics Education*, 50(7), 1125-1138.
- Makar, K., & Fielding-Wells, J. (2018). Shifting more than the goal posts: Developing classroom norms of inquiry-based learning in mathematics. *Mathematics Education Research Journal*, 30(1), 53-63.
- Fielding-Wells, J., O'Brien, M., & Makar, K. (2017). Using expectancy-value theory to explore aspects of motivation and engagement in inquiry-based learning in primary mathematics. *Mathematics Education Research Journal*, 29(2), 237-254.
- Corbett, M., Reaburn, R., Fraser, S., Smith, H., Roberts, J., & Fielding-Wells, J. (2017). Building a new generation: Community expectations on raising aspirations in rural Tasmania. *Australian and International Journal of Rural Education*, 27(3), 8-24.
- Muir, T., Fielding-Wells, J., & Chick, H. (2017). Developing an understanding of what constitutes mathematics teacher educator PCK: A case study of a collaboration between two teacher educators. *Australian Journal of Teacher Education*, 42(12), 60-79. DOI: 10.14221/ajte.2017v42n12.4
- Reaburn, R., Fraser, S., Smith, H., Roberts, J., Fielding-Wells, J., & Corbett, M. (2017). Aspire high: Impacting student aspirations in a regional community. *Australian and International Journal of Rural Education*, 27(3), 73-89.
- Fielding-Wells, J., Dole, S., & Makar, K. (2014). Inquiry pedagogy to promote proportional reasoning in primary students. *Mathematics Education Research Journal*, 26(1), 47-77.

## Conference papers

- Fielding-Wells, J., & Fry, K. (2019). Introducing guided mathematical inquiry in the classroom: Complexities of developing norms of evidence. In G. Hine, S. Blackley, & A. Cooke (Eds.), *Proceedings of the 42nd annual conference of the Mathematics Education Research Group of Australasia: Impacting Practice* (pp. 268-275). Perth: MERGA.
- Fielding-Wells, J., Geiger, V., Miller, J., Bruder, R., Roder, U., & Ratnayake, I. (2019). Designing challenging online mathematical tasks for initial teacher education: Motivational considerations. In M. Graven, H. Venkat, A. Essien, & P. Vale (Eds.), *Proceedings of the 43rd conference of the International Group for the Psychology of Mathematics Education* (Vol. 2, pp. 240-247). Pretoria, South Africa: PME.
- Makar, K., & Fielding-Wells, J. (2019). Extending Yackel & Cobb's socio-mathematical norms to ill-structured problems in an inquiry-based classroom. In U.T. Jankvist, M. Van den Heuvel-Panhuizen, & M. Veldhuis (Eds.), *Proceedings of the 11<sup>th</sup> Congress of the European Society for Research in Mathematics Education (CERME11)*. Utrecht, Netherlands: CERME.
- Fielding-Wells, J. (2017). *Hat plots and dot plots: Supporting young students emerging understandings of distribution, centre and variability through modelling*. Paper presented at the 10th International Conference of the Statistical Reasoning Thinking and Literacy Group (SRTL10), Rotorua, New Zealand.
- Oates, G., Beswick, K., Beisiegel, M., Evans, T., King, D., & Fielding-Wells, J. (2017). Videos in teacher professional development: Fostering an international community of practice. *Proceedings of the 41st Conference of the International Group for the Psychology of Mathematics Education* (pp. 155-156). Singapore: PME.

- Fielding-Wells, J. (2016). "Mathematics is just  $1+1=2$ , what is there to argue about?": Developing a framework for argument-based mathematical inquiry. In B. White, M. Chinnappan, & S. Trenholm (Eds.), *Proceedings of the 39th annual conference of the Mathematics Education Research Group of Australasia: Opening up mathematics education research* (pp. 214–221). Adelaide: MERGA.
- Fielding-Wells, J. (2015). Identifying core elements of argument-based inquiry in primary mathematics learning. In M. Marshman, V. Geiger, & A. Bennison (Eds.), *Proceedings of the 38th annual conference of the Mathematics Education Research Group of Australasia: Mathematics education in the margins* (pp. 229–236). Sunshine Coast: MERGA.
- Fielding-Wells, J. (2015). *Young children's development and use of models as evidence in support of informal statistical inference*. Paper presented at the 9th International Conference of the Statistical Reasoning Thinking and Literacy Group (SRTL9), Paderborn, Germany.
- Fielding-Wells, J., & Makar, K. (2015). "If it doesn't have an apex it's not a pyramid": Argumentation as a bridge to mathematical reasoning. In K. Beswick, T. Muir, & J. Fielding-Wells (Eds.), *Proceedings of the 39th Conference of the International Group for the Psychology of Mathematics Education* (pp. 297-304). Hobart, Tasmania: PME.
- O'Brien, M., Makar, K., Fielding-Wells, J., & Hillman, J. (2015). How inquiry pedagogy enables teachers to facilitate growth mindsets in mathematics classrooms. In M. Marshman, V. Geiger, & A. Bennison (Eds.), *Proceedings of the 38th annual conference of the Mathematics Education Research Group of Australasia: Mathematics education in the margins* (pp. 469–476). Sunshine Coast: MERGA.
- Fielding-Wells, J. (2014). Where's your evidence? Challenging young students' equiprobability bias through argumentation. In B. de Sousa, K. Makar, & R. Gould (Eds.), *Proceedings of the 9th International Conference on Teaching Statistics* (pp. 13-18). Netherlands: International Statistical Institute.
- O'Brien, M., Makar, K., & Fielding-Wells, J. (2014). *Characterising positive learner identity within mathematics inquiry classrooms*. Paper presented at the 2014 AARE conference, Brisbane, Australia.
- Fielding-Wells, J. (2013). Inquiry-based argumentation in primary mathematics: Reflecting on evidence. In V. Steinle, L. Ball, & C. Bordini (Eds.), *Proceedings of the 36th annual conference of the Mathematics Education Research Group of Australasia: Mathematics education- Yesterday, today and tomorrow* (pp. 290-297). Melbourne: MERGA.
- O'Brien, O., Makar, K., & Fielding-Wells, J. (2013). *Investigating connections between mathematics pedagogies and student efficacy and engagement*. Paper presented at the 36th annual conference of the Mathematics Education Research Group of Australasia: Mathematics education- Yesterday, today and tomorrow, Melbourne, Australia.
- Fielding-Wells, J., & Makar, K. (2012). Developing primary students' argumentation skills in inquiry-based mathematics classrooms. In J. van Aalst, K. Thompson, M.J. Jacobson, & P. Reimann (Eds.), *Proceedings of the 10th International Conference of the Learning Sciences: The Future of Learning* (pp. 149-153). Sydney, Australia: International Society of the Learning Sciences.
- Makar, K., Fielding-Wells, J., & Allmond, S. (2011). *Is this game 1 or game 2? Primary children's reasoning about samples during inquiry*. Paper presented at the 7th International Collaboration for Research on Statistical Reasoning, Thinking and Literacy, Utrecht, Netherlands.
- Fielding-Wells, J. (2010). Linking problems, conclusions and evidence: Primary students' early experiences of planning statistical investigations. In C. Reading (Ed.), *Proceedings of the 8th International Conference on Teaching Statistics* (pp. 2A3). Voorburg, Netherlands: International Statistical Institute.
- Fielding-Wells, J., & Makar, K. (2008). *Using mathematical inquiry to engage student learning within the overall curriculum*. Paper presented in the 11th International Congress for Mathematics Education, Monterrey, Mexico.
- Fielding-Wells, J., & Makar, K. (2008). *Student (dis)engagement in mathematics*. Paper presented at the annual conference of the Australian Association for Research in Education, Brisbane, Australia.

## Reports

- Wyatt-Smith, C., Du Plessis, A., & Fielding-Wells, J. (2019). *Guiding principles for curriculum supports*. Brisbane, Australia: Institute for Learning Sciences and Teacher Education, Australian Catholic University.
- Corbett, M.J., Fraser, S.P., Beswick, K., Smith, H., Wells, J., Reaburn, R.L. ... Page, L.A. (2017). *Report of the program evaluation of 'Dream Big'*. Launceston, Australia: University of Tasmania.

## Theses

- Wells, J. (2014). *Developing argumentation in mathematics: The role of evidence and context*. PhD Thesis, School of Education, University of Queensland.

Wells, J. (2008). *Affective, behavioural and cognitive engagement in primary school mathematics: the impact of inquiry-based learning*. M Ed. St. Thesis, School of Education, University of Queensland.

## Scholarly contributions and service

### Editorial roles

Role	Publication	Dates
Editor	Proceedings of the 39th Conference of the International Group for the Psychology of Mathematics Education (PME)	2015

### Fellowships, awards and memberships

#### Awards

- 2016, University of Tasmania, Research Merit Certificate (Outstanding Category)  
For recognition of outstanding contributions in publications, grants and supervision
- 2015, University of Tasmania, Research Merit Certificate (Outstanding Category)  
For recognition of outstanding contributions in publications, grants and supervision
- 2015, University of Tasmania, Teaching Merit Certificate  
For recognition of meritorious contribution to the teaching programs of the university
- 2010 – 2013, Australian Postgraduate Award  
Scholarship awarded on merit to undertake Doctor of Philosophy
- 2010, International Association for Statistics Education (IASE), Award for Excellence for a paper by an Early Career Author  
Paper Title: *Linking problems, conclusions and evidence: primary students' early experiences of planning statistical investigations*
- 2007, Minister's Award for Teacher Excellence  
Research Grant awarded to a practicing teacher to undertake research in education (value \$25,000).  
*Engaging Students through Inquiry Based Learning in Mathematics: Affect, Behaviour and Cognition*

#### Professorial Affiliations

- Australian Association for Research in Education (AARE)
- Mathematics Education Research Group of Australasia (MERGA)
- International Association for Statistics Education (IASE)
- International Collaborative for Research in Statistical Reasoning, Thinking and Literacy (SRTL)
- International Society of the Learning Sciences (ISLS)
- Australian Association for Mathematics Teachers (AAMT)
- Queensland Association for Mathematics Teachers (QAMT) – member, executive
- Mathematics Association of Tasmania (MAT)
- Queensland Association for Mathematics Teachers (QAMT)

### Invited reviewer

- Australian Research Council (ARC) peer reviewer
- Journal reviewer (selection):
  - Journal of Mathematics Teacher Education
  - ZDM – International Journal on Mathematics Education
  - Statistics Education Research Journal
  - Mathematics Education Research Journal
  - International Journal of Disability, Development and Education

### Service internal

#### Faculty of Education Committees

Including

- University of Queensland Faculty of Social and Behavioural Sciences Research Committee
- University of Queensland Faculty of Social and Behavioural Sciences Research Higher Degree Committee
- University of Tasmania Student Ethics and Integrity Committee

## **Service external**

### **Conference Organization**

- International Conference on Teaching Statistics (ICOTS10 - 2018): Conference Topic Lead Convenor: Probability
- International Conference on Teaching Statistics (ICOTS9 - 2014): Conference Topic Co-Convenor: Statistics Education at the School Level
- International Group for the Psychology of Mathematics Education (PME-39 - 2015): Local organizer; co-editor of proceedings

### **Professional Organizations**

- Executive Member, Mathematics Association of Tasmania (2014-2016)
- Executive Member & Treasurer, Queensland Association of Mathematics Teachers (2010-2012)