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Research Interests

My research interests encompass both mathematics education and aspects of the philosophy of education.
I am particularly interested in the influence of teacher attributes and organisational/societal factors on the pedagogical practices of mathematics educators and students' mathematical learning. I am also interested in the influence of active learning strategies on the affective domain in mathematics education and, from a philosophical/mathematical perspective, I retain an interest in the theoretical foundations of educational measurement models.
My current main interests are:

The influence of teacher characteristics and organisational/societal factors on mathematics teachers' pedagogical

practices and students' mathematical learning

Strategies for improving students' mathematical learning outcomes

The mathematical and philosophical foundations of educational measurement models

Research output

The possibilities and problematics of school evaluation: post-primary teachers' perspectives on the impact of school inspections in a high stakes inspection system
McClurg, K., Cantley, I. & Donnelly, C., 19 Mar 2024, (Early online date) In: Irish Educational Studies. 23 p.

The philosophical limitations of educational assessment: implications for academic selection
Cantley, I., 04 Feb 2024, Palgrave Macmillan. 174 p.

Philosophical perspectives on authentic assessment in mathematics
Cantley, I., 01 Dec 2023, (Accepted) *15th International Congress on Mathematics Education. Topic Study Group: Proceedings.* International Commission on Mathematical Instruction, (International Congress on Mathematics Education: proceedings).

The transformative potential of ipsative assessment in post-primary mathematics: a philosophical analysis
Cantley, I., 01 Dec 2023, (Accepted) *Proceedings of the 15th International Congress on Mathematics Education.* International Commission on Mathematical Instruction

Replication of quantitative psychological and educational research: a philosophical analysis
Cantley, I., 16 Apr 2023, *AERA Annual Conference 2023: Proceedings.* AERA, 8 p. (AERA Annual Conference Proceedings).

Replicable quantitative psychological and educational research: possibility or pipe dream?
Cantley, I., 09 Jan 2023, In: Educational Philosophy and Theory. 55, 1, p. 111-121

The philosophy of educational research in STEM
Cantley, I., 13 Oct 2022, *Perspectives in contemporary STEM education research: research methodology and design.* Delahunty, T. & Ní Ríordáin, M. (eds.). Routledge, (Routledge Research in STEM Education).

The gender similarities hypothesis: Insights from a multilevel analysis of high-stakes examination results in mathematics
Cantley, I. & McAllister, J., 01 Oct 2021, In: Sex Roles. 85, 7-8, p. 481-496 16 p.

Correction to: The gender similarities hypothesis: insights from a multilevel analysis of high-stakes examination results in mathematics
Cantley, I. & McAllister, J., Oct 2021, In: Sex Roles. 85, 7-8, p. 497 1 p.

Philosophical Insights into PISA and Mathematics Education Policy Issues
Cantley, I., 18 Jul 2021.

Framework for analysing continuity in students' learning experiences during primary to secondary transition in mathematics
Cantley, I., O'Meara, N., Prendergast, M., Harbison, L. & O'Hara, C., 18 Mar 2021, In: Irish Educational Studies. 40, 1, p. 37-49 13 p.

Teachers' self-perceptions of mathematical knowledge for teaching at the transition between primary and post-primary school
O'Meara, N., Prendergast, M., Cantley, I., Harbison, L. & O'Hara, C., 2020, In: International Journal of Mathematical Education in Science and Technology . 51, 4, p. 497-519 23 p.

A Quantum Measurement Paradigm for Educational Predicates: Implications for validity in educational measurement
Cantley, I., 28 Nov 2019, *Measuring up in Education: Philosophical Explorations for Justice and Democracy within and beyond Cultures of Measurement in Educational Systems.* Stolz, S. & Webster, S. (eds.). Routledge

Gender differentials in mathematical achievement: Insights from a multilevel analysis of high-stakes examination results
Cantley, I., 09 Nov 2019.

Bridging the Primary to Secondary School Mathematics Divide: Teachers' Perspectives
Prendergast, M., O'Meara, N., O'Hara, C., Harbison, L. & Cantley, I., 19 Jan 2019, In: Issues In Educational Research. 29 , 1, p. 243-260 18 p.

PISA and policy-borrowing: A philosophical perspective on their interplay in mathematics education
Cantley, I., 2019, In: Educational Philosophy and Theory. 51, 12, p. 1200-1215 16 p.

Teacher efficacy beliefs at the horizon between primary and secondary school mathematics education
Harbison, L., Prendergast, M., Cantley, I., O'Meara, N. & O'Hara, C., 2019, (Accepted).

Lecturers' perceptions of students' mathematical preparedness for higher education in one Institute of Technology: In the conference proceedings of the Ireland International Conference on Education (IICE-2018)
Duggan, L., Cowan, P. & Cantley, I., 2018.

A cross-national comparative study of teachers' views on the transition from primary to post-primary mathematics education
Cantley, I., O'Meara, N., Prendergast, M., Harbison, L. & O'Hara, C., 11 Nov 2017.

Are first year undergraduates mathematically resilient? A comparison of a STEM and a non-STEM discipline in an Institute of Technology
Duggan, L., Cowan, P. & Cantley, I., 01 Sept 2017, In: International Journal for Cross-Disciplinary Subjects in Education . 8, 3, p. 3169-3178 10 p.

The Mathematical Transition to Higher Education – A case study of Engineering Students in one Institute of Technology: In the conference proceedings of the Ireland International Conference on Education (IICE-2017)
Duggan, L., Cowan, P. & Cantley, I., Apr 2017.

Project Maths and the Non-Cognitive Domain – The Perceptions of a group of Engineering Students in one Institute of Technology
Duggan, L., Cowan, P. & Cantley, I., 01 Mar 2017, In: International Journal for Cross-Disciplinary Subjects in Education . 8 , 1, p. 3025-3033 9 p.

A quantum measurement paradigm for educational predicates: Implications for validity in educational measurement
Cantley, I., 2017, In: Educational Philosophy and Theory. 49, 4, p. 405-421 17 p.

Are First Year Undergraduates Mathematically Resilient? A Comparison of a STEM and a non-STEM Discipline in an Institute of Technology: In the conference proceedings of the Ireland International Conference on Education (IICE-2017)
Duggan, L., Cowan, P. & Cantley, I., 2017.

Collaborative cognitive-activation strategies as an emancipatory force in promoting girls' interest in and enjoyment of mathematics: A cross-national case study
Cantley, I., Prendergast, M. & Schlindwein, F., 2017, In: International Journal of Educational Research. 81, p. 38-51

Strengthening the Bridge between Primary and Secondary Mathematics Education
Prendergast, M., O'Meara, N., O'Hara, C., Harbison, L. & Cantley, I., 2017.

Teacher Knowledge & Practices – The Key to Educationally Effective Transition from Primary to Second Level Mathematics Education
O'Meara, N., Prendergast, M., Cantley, I., Harbison, L. & O'Hara, C., 2017.

Teachers' Perspectives on the Transition from Primary to Secondary School Mathematics
Prendergast, M., O'Meara, N., O'Hara, C., Harbison, L. & Cantley, I., 2017.

Evaluating the impact of an innovative learning resource on the affective domain in mathematics education
Cantley, I. & Prendergast, M., 26 Aug 2016.

A Quantum Framework for Educational Measurement
Cantley, I., 26 May 2015.

How secure is a Newtonian paradigm for psychological and educational measurement?
Cantley, I., Feb 2015, In: Theory and Psychology. 25, 1, p. 117-138 22 p.

Implications of Wittgenstein's later philosophy for learning and teaching
Cantley, I., 29 Mar 2014.

A test of Sen's entitlement hypothesis
McGregor, P. & Cantley, I., 01 Jan 1992, In: Statistician. 41, 3, p. 335-341 7 p.

Projects

R3713EDU: PIEM: Pupil Interest and Enjoyment of Mathematics
Cantley, I.
17/08/2015 → …

Activities

15th International Congress on Mathematics Education
Ian Cantley (Speaker)
07 Jul 2024 → 14 Jul 2024

Examination of PhD at Lancaster University
Ian Cantley (Examiner)
12 Mar 2024

American Educational Research Association Annual Meeting 2023
Ian Cantley (Speaker)
13 Apr 2023 → 16 Apr 2023

Working Group on Specialist Mathematics Schools/Hubs
Ian Cantley (Advisor)
2023 → 2024

Sex Roles (Journal)
Ian Cantley (Peer reviewer)
2022 → …

14th International Congress on Mathematics Education
Ian Cantley (Speaker)
11 Jul 2021 → 18 Jul 2021

UK ESRC NINE Doctoral Training Partnership (External organisation)
Ian Cantley (Advisor)
2021 → 2022

Irish Educational Studies (Journal)
Ian Cantley (Peer reviewer)
2020 → …

British Society for Research into Learning Mathematics Autumn 2019 Conference
Ian Cantley (Organiser)
09 Nov 2019

Keynote address at BSRLM Autumn 2019 Conference
Ian Cantley (Advisor)
09 Nov 2019

NI Mathematics Teacher CPD Conference
Ian Cantley (Participant)
28 Aug 2019

QUB Education Lead for the ESRC NINE Doctoral Training Partnership
Ian Cantley (Recipient)
2019 → 2022

Educational Philosophy and Theory (Journal)
Ian Cantley (Peer reviewer)
2018 → …

British Society for Research into Learning Mathematics Autumn 2017 Conference
Ian Cantley (Speaker)
11 Nov 2017

ECER Annual Conference 2016
Ian Cantley (Speaker)
26 Aug 2016

ATINER 10th Annual International Conference on Philosophy
Ian Cantley (Speaker)
25 May 2015 → 28 May 2015

Council for Curriculum Examinations & Assessment (External organisation)
Ian Cantley (Chair)
2015 → 2016

International Journal of Educational Research (Journal)
Ian Cantley (Peer reviewer)
2015 → …

Theory and Psychology (Journal)
Ian Cantley (Peer reviewer)
2015 → …

PESGB Annual Conference 2014
Ian Cantley (Speaker)
28 Mar 2014 → 30 Mar 2014