
JOHN LAWTON

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CAREER PROFILE

Strong classroom teaching skills demonstrated while undertaking research into the conceptualisation of angle in the teaching of geometry. Mathematics education publisher and curriculum developer with 22 years' experience. Deep understanding of, insight into, and passion for the development of inspiring, open ended and meaningful mathematics learning tools, materials, lesson sequences and environments. Combined with extensive and innovative teacher professional development training.

EDUCATION

PhD in Education

Deakin University, Melbourne, Victoria

January 2018 -

December 2025

- Research topic; The conceptualisation of angle and its role in geometry education

Master of Education

Deakin University, Melbourne, Victoria

January 2012 -

December 2015

- Research project; tool mediation in a year five geometry classroom
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KEY SKILLS

- Strong teaching and training skills. Including classroom teaching and professional development training of teachers.
 - Author and/or publisher of a series of innovative, open ended and creative mathematics teaching and learning publications. Including the Mathomat geometry template, EMPower applied learning in mathematics series, and mathematics teacher resource publications.
 - Expert knowledge, as a PhD candidate, of the conceptualisation of angle and its importance in geometry teaching. Involving deep understanding of teaching for this topic and the underlying research supporting it in Australian curriculum profiles. Interest in the development of lesson sequences to transform student engagement in geometry.
 - Deep understanding of entrepreneurship to support the development of educational publications. Including an understanding of the process of patent development.
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TEACHING EXPERIENCE

PhD classroom research

2023-2024

- Develop and implement an experimental lesson sequence for angle with 6 case study teachers. Based on a Qualtrics survey of angle teaching practice by 40 Australian mathematics teachers and related literature review.
- Primary sequence (completed). Delivering angle lessons at levels 3, 4 and 5 in three different schools adapted from a sequence developed by DET NSW. Design and implementation of post

lesson testing to determine lesson effectiveness compared with the Victorian curriculum.

- Secondary sequence (planned for 2024). Design and deliver an experimental lesson sequence and post lesson student assessment to address problems identified with the teaching of angle. Three case study teachers at levels 7 and 8 will cooperate with lesson implementation.

Other teaching experience

January 2000

- Master of education, related classroom teaching (2012 – 2015). Implement a lesson involving problem solving with gifted and talented level 8 students. Plan and implement a research study involving a lesson on Cartesian coordinates with level 5 students.
- Designed and implemented a creative drawing lesson involving Mathomat with level 8 students in several schools.
- Professional development training of mathematics teachers for MATHOMAT and for OLM learning materials on many occasions. These involved Key Curriculum Press and Nectar Foundation software, Dale Seymour, Tarquin, Stokes Publishing and EMPOWER series teaching publications.

EXPERIENCE

Objective Learning Materials, Melbourne, Victoria

January 2000

- Present

Managing Director

- Used knowledge of the Australian curriculum to publish Australian versions of leading international mathematics resources such as the Empower program, Digging into Australian Data with Tinker plots and Maths Trek software.
- Implemented teacher professional development Inservice programs for innovative mathematics resources.
- Built on the ability of the Mathomat template to engage students by pioneering a new graphic style of student manual. Combined with the invention of four patents related to Mathomat.
- Sole Australian distributor for international publishers and producers of educational materials. Including Key Curriculum Press (USA), Stokes Publishing (Mathmaster calculators, USA), Claire Publishing (UK), Tarquin Publishing (UK), Taurus Plastics (NZ), Berol (USA & UK) and Maped (France).
- Published mathematics resource books such as Strategies for Problem Solving by Kaye Stacey and Susie Groves and From Conjecture to Proof by Ken Milton and Howard Reeves.

Deakin University

February 2012-

Present

Educational research projects

PhD research based on a quantitative survey and work with six individual mathematics teacher case studies. My research aims to understand the conceptualisation of angle in the teaching of geometry. It then studies the change to teaching practice that might result from enhancement of angle teaching. This builds on earlier research into geometry teaching during my Master of Education degree.

Educational Efficiency Products (EEP) inventors of MATHOMAT, Melbourne, Victoria

January 1993 -

Present

Managing Director

- Acquired intellectual property for Mathomat through purchase of EEP.
- Developed a series of authoring relationships for lesson plans for Mathomat.

- Developed the Maped educational stationery brand through national retail chains, marketed jointly with Mathomat.
- **W&G Education Pty Ltd, Melbourne, Australia** May 1984 - Present

Managing Director (May 1985 - May 1991)

- Created a rapidly growing and profitable venture from original moribund business.
- Working under a discretionary IR&D grant, established an innovative new manufacturing process for high volume production of educational drawing tools.
- Created competitive advantage with new manufacturing process, used to expand sales by negotiating contract manufacturing relationships with NSW School of Fashion (for dress making tools that we had co-designed with them), authors of Mathomat and Mathaid brands of geometry templates, and the Australian Army and Airforce
- Pitched for, and operated, a series of exclusive Australian market distribution agreements for international brands of educational stationery including Berol (USA and UK), Taurus Plastics (NZ) and Maped (France)

PUBLICATIONS

Two proposals for presentation at the 15th International Congress on Mathematical Education. Sydney, 7-14 July 2024.

Understanding teachers' conceptualisation of angle

Concept image, and its interaction with formal mathematics is central to the learning of geometry. This paper discusses findings from the author's survey of mathematics teachers. Teacher concept image is mapped and compared with international studies.

<https://drive.google.com/file/d/1y1YB1lgRtlogEcJYADUOrGw0aeKzsLf1/view>

Learning to think like a mathematician.

Co-authored with Christopher C. Tisdell.

The learning and teaching of geometry provides educators with the opportunity to encourage students to "think like mathematicians". This paper shows how geometric construction provides a fertile environment within which students can measure, compare and refine mathematical complexity. Core mathematical values such as simplification, minimality, accuracy and elegance are explored.

https://docs.google.com/document/d/15FBJwz8SddOMFtSDRvcuP_z2uTVypQiZ/edit?usp=sharing&oid=109173403145630602878&rtpof=true&sd=true

COURSES AND CERTIFICATIONS

- VCE mathematics methods, 2013 Council of Adult Education
- Certificate IV in Training and Assessment, 2010 APCOT Centre