

Dr Dave Hewitt

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About

Dave taught in a number of schools for 11 years before joining the University of Birmingham. As well as teaching on Initial Teacher Education and with experienced teachers at Masters and Doctoral level, his research interests centre around the notion of the economy of personal time and effort in the teaching and learning of mathematics. Two particular themes are central to this: viewing the mathematics curriculum in terms of arbitrary (socially agreed names and conventions) and necessary (properties and relationships), with teaching the former being about assisting memory and teaching the latter about educating awareness. The second theme concerns the notion of subordination: practising a skill which is required to be used in order to engage with a separate main focused task. Attention is with the main task, but the productive learning is often with the subordinated skill.

These themes inform research carried out within various areas including the teaching and learning of algebra, the placement of attention, pedagogic issues relating to notation, the use of imagery, and the opportunities offered by technology.

Dave has produced a number of computer programs, including Grid Algebra, Developing Number, Multimedia Mathematics School and a set of files for dynamic geometry software, Active Geometry.

In 2013, Dave received the School of Education and College of Social Sciences Award for Excellence in Teaching for his novel and innovative approach to the teaching of mathematics, along with his nurturing and caring nature towards students.

Qualifications

- PhD (Open University)
- PGCE (Exeter)
- BA (Warwick)

Teaching

Dave teaches on the **secondary mathematics PGDipEd** ([/postgraduate/courses/taught/edu/pgce-secondary-mathematics.aspx](http://postgraduate/courses/taught/edu/pgce-secondary-mathematics.aspx)) course and on the **secondary mathematics Subject Knowledge Enhancement (SKE)** ([/postgraduate/courses/taught/edu/secondary-mathematics-ske.aspx](http://postgraduate/courses/taught/edu/secondary-mathematics-ske.aspx)) course. He also works with experienced teachers on Masters and PhD qualifications. Dave is a member of the Department of Professional Development.

Postgraduate supervision

Dave works with a number of Masters students completing their MEd in Teaching Studies who have a particular focus on mathematics education.

Dave is currently supervising two PhD students: **Danyal Farsani** ([/schools/education/courses/postgraduate-research/profiles/danyal-farsani.aspx](http://schools/education/courses/postgraduate-research/profiles/danyal-farsani.aspx)) is looking at the experiences that Farsi/English bilingual learners have learning mathematics in a 'complimentary/weekend' school; Philip Borg is looking into the use of the computer program *Grid Algebra* within a school in Malta.

Dave is also supervising Leanne Foxall who is doing an EdD in Learning and Learning Contexts.

Research

Mathematics Education:

- Economy of personal time and effort;
- The placement of attention;
- Viewing the curriculum in terms of arbitrary and necessary;
- The learning and teaching of algebra, and the role notation plays within this;
- The use of imagery;
- The role of subordination in assisting fluency;
- The use of technology;
- Research methodology: The Discipline of Noticing (John Mason)

Software developed:

- Grid Algebra;
- Developing Number 2;
- Active Geometry files;

- Multimedia Mathematics School (available from RM):
 - Working with Equations;
 - Simultaneous Equations;
 - Equations and Graphs.

Current Research:

The use of the computer program *Grid Algebra* within primary and secondary school situations. A particular focus is on the way in which students appear to gain confidence in the use of quite complex formal notation and the meanings they give to letters and algebraic expressions.

Other activities

- Editorial Board member of *For the Learning of Mathematics*
- Past Editor of *Educational Review*
- I have been an External Examiner for a number of Masters and PGCE courses
- Co-ordinator of the Birmingham branch of the *Association of Teachers of Mathematics* and the *Mathematical Association*
- Secretary of the *Association of Mathematics Education Teachers* (AMET)

Publications

Selected Publications

Hewitt, D. (2013). Learning algebraic notation and order of operations using Grid Algebra software. *Mathematics Teaching* 232, pp. 21-24.

Hewitt, D. (2013). Introduction of letters and solving linear equations using Grid Algebra. *Mathematics Teaching* 233, pp. 6-10.

Hewitt D. (2012) Young students learning formal algebraic notation and solving linear equations: are commonly experienced difficulties avoidable? *Educational Studies in Mathematics*. DOI: [10.1007/s10649-012-9394-x](https://doi.org/10.1007/s10649-012-9394-x) (<http://dx.doi.org/10.1007/s10649-012-9394-x>)

Hewitt D. (2012) **What is algebraic activity? Consideration of 9-10 year olds learning to solve linear equations** (http://www.cerme7.univ.rzeszow.pl/WG/3/CERME7_WG3_Hewitt.pdf) (In *Proceedings of the 7th Conference of the European Society for Research in Mathematics* (CERME), 500-510, Rzeszów, Poland).

Hewitt, D. (2010). The role of subordination and fading in learning formal algebraic notation and solving equations: the case of Year 5 students. In M. M. F. Pinto & T. F. Kawasaki (Eds.), *Proceedings of the 34th Conference of the International Group for the Psychology of Mathematics Education* (Vol. 3, pp. 81-88). Belo Horizonte, Brazil: PME.

Hewitt, D. (2010), 'Feedback: expanding a repertoire and making choices', in R. Leikin and R. Zazkis (Eds.), *Learning through teaching mathematics: development of teachers' knowledge and expertise in practice*, New York, NY: Springer, pp. 263-285.

Hewitt, D. (2009). From before birth to beginning school. In J. Houssart & J. Mason (Eds.), *Listening Counts: listening to young learners of mathematics* (pp. 1-15). Stoke-on-Trent: Trentham Books.

Hewitt, D. (2009), Towards a curriculum in terms of awareness, in S. Lerman and B. Davis (Eds.), *Mathematical action & structures of noticing: studies on John Mason's contribution to mathematics education*, Rotterdam, Netherlands: Sense Publications, pp. 89-100.

Hewitt, D. (2009), 'The role of attention in the learning of formal algebraic notation: the case of a mixed ability Year 5 using the software Grid Algebra', in M. Joubert (Ed.), *Proceedings of the British Society for Research into Learning Mathematics*, Vol. 29(3), Loughborough University, British Society for Research into Learning Mathematics, pp. 43-48.

The Principle of Economy in the Learning and Teaching of Mathematics ([/Documents/college-social-sciences/education/staff/hewitt-dave-phdthesis.pdf](#)). PhD Thesis, 1994

 [Full publication list for Dr Dave Hewitt \(PDF, opens new window\)](#) ([/Documents/college-social-sciences/education/publications/hewitt-dave.pdf](#))