Institution:
University of Cambridge

Unit of Assessment:
UoA25

Title of case study:
C.Ind.Le research influences practice and informs policy on supporting independent learning in young children

1. Summary of the impact (indicative maximum 100 words)

The research conducted through the C.Ind.Le project, between 2002 and 2006, was the first to reveal and catalogue the metacognitive and self-regulatory abilities of children in the 3-5 age range. The project outcomes included an observation instrument, now widely used by teachers in early years educational settings, and a training course on pedagogies supporting development of these abilities in young children. This research has had direct regional impact on practice at the Foundation Stage in Cambridgeshire, national impact through its influence on the 2012 revision of the DfE framework for the Early Years Foundation Stage, and international impact through consultancy to the LEGO Foundation and other collaborations.

2. Underpinning research (indicative maximum 500 words)

Key Researchers

David Whitebread (Principal Investigator) Senior Lecturer in Psychology & Education (University of Cambridge Faculty of Education 2001-present).

Penny Coltman, Lecturer in Education (University of Cambridge Faculty of Education 2001-present).

Underpinning Research Project

The Cambridgeshire Independent Learning in the Foundation Stage (C.Ind.Le) project was conducted between 2002 and 2006.

The emergence and development of young children's metacognitive abilities and self-regulation (referred to within the education arena as 'learning how to learn' or 'independent learning') has been Dr Whitebread's long-term research focus. It was well established, through a considerable body of research over the last 40 years, that metacognitive abilities (enabling us to be aware of and in control of our own cognitive processing, and to build up metacognitive knowledge) are crucially significant predictors of academic achievement. Prior to Whitebread's C.Ind.Le project the mainstream position within the developmental and educational psychology communities was that metacognitive abilities are a complex set of skills which children do not begin to develop until around the age of 8-10 years. However, previous work had largely depended upon self-report, or laboratory-based data, which is now recognized to systematically under-estimate the abilities of younger children.

The aims of the C.Ind.Le project were to:

- Demonstrate and catalogue the metacognitive and self-regulatory abilities of children in the 3-5 age range [3.1]
- Establish a model of the development of children's independent learning to underpin the design of an audit/assessment tool [3.4]
- Identify the kinds of experiences and interventions that are most effective in encouraging children's independent learning abilities [3.3]
- Devise practical classroom activities, procedures and teaching strategies which have a demonstrable impact on children's development of self-regulation [3.1] [3.2] [3.5]

The C.Ind.Le project collected naturalistic observational data, of around 1,440 three-five year old children from 32 Foundation Stage classes in Cambridgeshire which resulted in over 700 video files, recording episodes of metacognitive and self-regulatory behaviours in these subjects.

This study was the first to demonstrate the emergence of metacognitive abilities in younger children. The key outcomes of the project were:

- Data illustrating the range of metacognitive and self-regulatory behaviours exhibited by 3-5 year olds [3.2] [3.4]
- Analyses of contextual factors which appear to support the emergence and practice of these abilities, including child-initiated activities, play contexts of various kinds, problem-solving and collaborative activities [3.3] [3.5]
- A model and coding framework for self-regulation in young children, enabling the

systematic analysis of observational data containing episodes of metacognitive and self-regulatory behaviours [3.4]

- The identification of non-verbal and verbal indicators of these early abilities [3.4]

To secure impact on professional practice, these were translated into:

- An observational instrument (CHILD: Checklist of Independent Learning Development), for use by teachers, to assess the metacognitive and self-regulatory abilities of children in this age range, and as an instrument to assess their own pedagogical practices. [3.4]
- A 30 hour training course for Foundation Stage teachers, incorporating a double CD resource of video and other material illustrating the range of behaviours they should observe in their children, the pedagogical practices that support them, and the use of the observational instrument as an assessment and audit tool. [3.1]

3. References to the research (indicative maximum of six references)

Project title

Cambridgeshire Independent Learning in the Foundation Stage (C.Ind.Le) (PI: Whitebread)

Grants received

£120,000 from Cambridgeshire Local Authority between 2002 and 2006;
£2,000 from the Vicky Hurst Trust, in 2006

Publications

3.1 Whitebread, D., Anderson, H., Coltman, P., Page, C., Mehta, S. & Pino Pasternak, D. (2006) The C.Ind.Le Project: Supporting young children in becoming self-regulated learners. CD-ROM resource: University of Cambridge/Cambridgeshire Care and Education Partnership.

3.2 Whitebread, D., Anderson, H., Coltman, P., Page, C., Pino Pasternak, D. & Mehta, S (2005). Developing Independent Learning in the Early Years, *Education 3-13*, 33, 40-50. DOI:10.1080/03004270585200081

3.3 Whitebread, D., Bingham, S., Grau, V., Pino Pasternak, D. & Sangster, C. (2007). Development of Metacognition and Self-Regulated Learning in Young Children: the role of collaborative and peer-assisted learning, *Journal of Cognitive Education and Psychology*, 6, 433-55. DOI: 10.1891/194589507787382043

3.4 Whitebread, D., Coltman, P., Pino Pasternak, D., Sangster, C., Grau, V., Bingham, S., Almeqdad, Q. & Demetriou, D. (2009) The development of two observational tools for assessing metacognition and self-regulated learning in young children, *Metacognition and Learning*, 4(1), 63-85. DOI: 10.1007/s11409-008-9033-1

3.5 Whitebread, D. & Coltman, P. (2010) Aspects of pedagogy supporting metacognition and mathematical learning in young children; evidence from an observational study, *ZDM: The International Journal on Mathematics Education*, 42 (2), 163-178. DOI: 10.1007/s11858-009-0233-1.

3.1 was directly devised for the potential practitioner user audience and 3.2 was published in a peer-reviewed research journal that reaches a substantial practitioner user audience. The key papers reporting the research, 3.3, 3.4 and 3.5, were published in international research journals recognised as having particularly high standards of peer review. For example, *Metacognition and Learning* [3.3] received its first impact factor in 2010, which was 2.038, when it was ranked 12th of 184 journals in the ISI category of Education & Educational Research. In the first 3 months of 2012 the C.Ind.Le project article was the most highly downloaded from the journal, with 813 downloads.

4. Details of the impact (indicative maximum 750 words)

Regional

The C.Ind.Le project produced a double CD-ROM pack, launched in 2006, which has been the central training resource in a 30 hour advanced professional certificate course, sponsored by Cambridgeshire Local Authority (and a shorter 6 hour 'taster' course), which were together attended by around 200 Foundation Stage Cambridgeshire practitioners from 2008 to 2010. The courses were extremely positively evaluated by participants, with many attesting significant change in their practice. Between 2008 and 2010 the short course was used by Cambridgeshire Early Years' Service as a pre-OFSTED training for Foundation Stage settings, and this resulted in significantly improved outcomes for many settings. All this is evidenced in the letter from the Early

Years' Service within Cambridgeshire Local Authority [5.1].

National and international

This training resource has also been purchased for use in other regions of the UK (to date the original printing of 500 copies are all sold, and around 20 copies have been reprinted). Courses have been personally delivered by Dr. Whitebread & Mrs. Coltman in Peterborough and in Harrow (both in 2008) and by Dr. Whitebread and others abroad (e.g.: Australia, 2008; Jordan, 2009; Turkey, 2010; Canada, 2010 & 2013; Cyprus, 2008-13 and Chile 2008-13). In further cases this dissemination has been carried out by Masters and PhD students, some of whom worked as temporary research assistants on the C.Ind.Le project.

As a consequence of this national and international dissemination of the outcomes of the C.Ind.Le project among the early years teaching profession (including the CHILD observational tool), Dr. Whitebread's advice was sought by the recent Tickell Review of the UK Early Years Foundation Stage (2011), commissioned by the Department for Education. The section of this report headed 'characteristics of effective learning' heavily reflected this research. This work, in turn, influenced some of the amendments to the revised Early Years Foundation Stage (DFE, 2012). All this is evidenced in the letter from a member of the DFE National Strategies team, adviser to the Tickell enquiry, and subsequently author of *Development Matters in the Early Years Foundation Stage* (EYFS) (DfE, 2012), the non-statutory guidance material accompanying the revised Statutory Framework for the EYFS (DfE, 2012) [5.2].

Letters from members of the Executive Committee of TACTYC: the Professional Association of Early Years Educators also testify to the influence of Dr. Whitebread's research on the UK Foundation Stage [5.3 and 5.4].

Dr Whitebread has also been asked to undertake international consultancy with the LEGO Learning Institute (now the LEGO Foundation) on the importance of early metacognitive processes and how these are supported in constructional and imaginative play, and particularly in collaborative problem-solving activities. For example, he is currently advising on the development of a school-based assessment tool which draws directly from the insights emerging from the C.Ind.Le project, and is undertaking research with local primary schools, funded by the Lego Foundation, examining the impact of constructional and pretence play on children's writing [5.5]

5. Sources to corroborate the impact (indicative maximum of 10 references)

Supporting documents

5.1 Letter from Cambs Early Years Advisory Service [Supporting document 1]
5.2 Letter from *ex*-member of the DFE National Strategies team, author of Development matters, and now independent early years consultant. [Supporting document 2]
5.3 Letter from Chair of TACTYC, testifying to the influence of Dr. Whitebread's research in the UK Foundation Stage. [Supporting document 3]
5.4 Letter from Editor of *Early Years,* testifying to the influence of Dr. Whitebread's research in the UK Foundation Stage. [Supporting document 4]
5.5 Letter from Director, LEGO Learning Institute itemizing Dr. Whitebread's work advising LEGO. [Supporting document 5]