

<b>Institution:</b> Birmingham City University
<b>Unit of Assessment:</b> 29 – English Language & Literature
<b>Title of case study:</b> Bringing new insights to the construction industry through the philosophy of expertise
<p><b>1. Summary of the impact</b> (indicative maximum 100 words)</p> <p>Professor Mark Addis of the School of English undertook pioneering collaborative interdisciplinary work with David Boyd (Professor of Construction at Birmingham City University) to engage with an area of business where the humanities are not usually valued. The philosophy of expertise assisted three major construction companies, Mouchel, Rider Levett Bucknall and Thomas Vale Construction, to better understand their practices. These new perspectives into construction management challenged existing practices and stimulated practitioner debate in the industry. The impacts were for individuals, who made more effective interventions in their practice especially in terms of skill development and project organisation; company groups, who gained insights which developed their practice; and the wider industry through presentations to leading national construction representative organisations.</p>
<p><b>2. Underpinning research</b> (indicative maximum 500 words)</p> <p>Construction is a major industry which involves extensive use of expertise at a variety of levels, from technical craft to managerial skills, and in intense situations driven by time and resource constraints. Various governments have argued that construction should be able to introduce new methods and techniques to raise overall performance, but the industry is still being criticised for its failings (continuing in the same vein as J. Egan, 1998, <i>Rethinking Construction: Report of the Construction Task Force</i>. London: HMSO). What differentiates construction from many other industries is that situations involving buildings, sites, and personnel are seldom uniform. Objectivist knowledge management approaches, which assume that much organisational knowledge can be separated from the individuals or groups who possess it, with knowledge stored in a systematic, generalised and codified way, predominate in the construction industry. Research undertaken by Addis and Boyd has shown these approaches to be problematic as they oversimplify the difficulties of successful practice.</p> <p>The research underpinning the impact was undertaken by Addis and Boyd from 1999 onwards as a consequence of recognising their interest in the same problems from different perspectives. Addis carried out significant research on Wittgenstein and allied areas, as well as on the philosophies of language and mind. His work on abilities, action, practices and understanding in Wittgenstein led to an interest in the philosophy of expertise, which is defined here as covering practical knowledge of various kinds, attention-based knowledge, skills, decision making and action planning. Addis considered various ways in which the successful situational response which characterises expertise could be theorised. Through this analysis of practice, Addis developed a desire to influence the construction industry to adopt a more holistic approach to project management. In so doing, he was able to bring new insights to long-term problems about effective performance in construction through his innovative idea of using expertise-based language and concepts to express, analyse and improve practice. This meant investigating not just how philosophical theory can inform practice but how practice, properly understood, can inform philosophical theory, particularly in the Wittgensteinian sense of practices being an embedded and communal activity.</p> <p>Boyd has an extensive track record of research in construction relating to knowledge management and organisational learning. In a previous 2003 Department of Trade and Industry funded project, he and Dr Hong Xiao worked with small and medium-sized construction companies on their organisational development through knowledge management, using an innovative technique of knowledge capture. They discovered that, although companies sought improvements in practice via objectivist knowledge management, their actual practice depended on the application of individual expertise in particular contexts, with the result that companies become more aware of the nature of their expertise. Fusing their extensive research in diverse academic fields, Addis and Boyd were able to develop novel solutions to existing problems within construction management</p>

## Impact case study (REF3b)

and demonstrate the benefits of greater engagement and interaction between the humanities and construction companies. Addis' philosophical approach to knowledge management enabled these organisations to vitally reassess their approach to managing complex projects.

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

Addis, M. (2013). 'Linguistic Competence and Expertise' for a special issue of *Phenomenology and the Cognitive Sciences* entitled 'Tacit Knowledge: New Theories and Practices' [DOI: 10.1007/s11097-011-9211-5] (in REF2).

Addis, M. (1999). *Wittgenstein: Making Sense of Other Minds*. Aldershot: Ashgate [ISBN: 978-0754610434].

Addis, M. (2007). 'Wittgenstein's Private Language Argument and Self Consciousness', *Sats-Nordic Journal of Philosophy*, 8:2 [DOI: 10.1515/SATS.2007.89] (Returned to RAE2008).

Boyd, D. (2006). 'Developing a Knowledge Centric Approach to Construction Education', *Architectural Engineering and Design Management* 2:1-2, 149-159. [DOI: 10.1080/17452007.2006.9684612] (Returned to RAE2008).

Boyd, D. and Addis, M. (2011). 'Moving from Knowledge Management to Expertise Management: a Problem of Contexts'. *Centre for Environment and Society Research Working Paper Series*, no.3. [ISBN: 978-1-904839-46-0] (in REF2).

Boyd, D. and Addis, M. (2010). 'Philosophy in Construction: Understanding the Development of Expertise', in T. Sulbaran (ed.) *Proceedings of the Associated Schools of Construction 46th Annual International Conference*: <http://ascpro.ascweb.org/chair/paper/CEGT160002010.pdf>. (major conference proceedings; papers assigned to 5 or more reviewers in a blind review process).

### Key Research Grants

2008-9 *Philosopher in Residence in Construction Companies*.

PI: Mark Addis. AHRC Knowledge Transfer Fellowship: £34,227 (AH/G010099/1)

2003 *Knowledge Management for Construction SMEs*.

PI: David Boyd. Department of Trade and Industry: £198,000

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

Addis (Professor of Philosophy: Fellow) and Boyd (Professor of Construction: Co-investigator) conducted pioneering collaborative interdisciplinary research in philosophy and construction which extended traditional disciplinary boundaries in an AHRC Knowledge Transfer Fellowship project *Philosopher in Residence in Construction Companies*. The work demonstrated the benefit that the humanities can bring to businesses by using the philosophy of expertise to assist three major construction companies, Mouchel, Rider Levett Bucknall and Thomas Vale Construction, in challenging their existing practices. Mouchel is a civil engineering and public infrastructure management organisation employing nearly 11,000 people. Involvement was through the Highways Division Business Improvement Director. Rider Levett Bucknall is a multi-disciplinary consultancy offering cost- and project-management services, with 2000 people worldwide. Involvement was through their Chairman. Thomas Vale Construction is a medium-sized building contractor operating in the Midlands employing about 830 people, with a strong record of public and private sector partnership working. Involvement was through a Director. The research explored the nature of practice from a practitioner perspective by working in critical dialogue with groups of staff, ranging from tradespeople to construction professionals and managers. It encouraged theoretical reflection on expertise in the companies, including encouraging a critical attitude towards objectivist knowledge management approaches in construction, and promoted a better appreciation of the complexity of the industry, including the range of skills and intelligences required for effective performance. A conceptual dictionary of key construction management practice ideas was created to help find the right kind of language to talk about knowledge management and skilled performance. This dictionary also helped to communicate the results,

which included understanding the limitations of logical analytical rationality and the importance of analogical thinking in the construction environment when there is incomplete information.

Despite the fact that the period since the Knowledge Transfer Fellowship has seen the construction industry affected badly by the recession, there continue to be major impacts resulting from the work. These impacts have been insights into achieving improved practice, especially in terms of individual skill development and project organisation for individuals, company groups (2008-9) and the industry (2010-2012), facilitated by presentations to three leading national construction representative organisations (2010-2011): Constructing Excellence, Construction Industry Research & Information Association, and the Chartered Institute of Building. Impact occurred through the critical dialogue with groups of staff, which took the form of individual interviews and team discussions about the nature of their expertise, as participation in this discourse resulted in greater understanding of the character of better practice. Addis' contribution to the impact was in terms of theoretical analysis of expertise and of the data from the companies, along with being involved in the critical dialogue sessions. At Mouchel Highways, structure engineers dealing with design, feasibility studies and quality assurance gained greater understanding of the importance of acquiring expertise in integration skills for finding effective solutions to design problems. There was increased appreciation of the difficulties created by engaging external subcontractors on a short-term basis and why this method of cost control carries risks. The Business Improvement Director at Mouchel commented that

The project enabled Mouchel Highways to re-appreciate the skills of its employees as being broader and less tangible than previously understood. [...] at an individual level, those involved in the project gained a confidence in their application to their tasks and are now more able to address the uncertain and ambiguous world of construction. [1]

At Rider Levett Bucknall (RLB), project managers used ideas from the new conceptual category of expertise management to reflect on the types of knowledge that are particularly important for effective project delivery. There was better appreciation of the importance of maximising individual skills and sharing such abilities within the company along with learning from projects. The RLB representative remarked the work by Addis and Boyd "has given the company new insights into what better practice means and how it can be achieved" [2]. At Thomas Vale Construction, expertise management ideas were employed to identify the multiple skills (including interpersonal ones) which staff require for efficient work completion and turn-around times in social housing refurbishment. Their Director commented that the project "enabled us to revise our perspective on expertise and how we go about bringing together our knowledge" [3].

Research impact was extended into the wider construction industry through publications, presentations and other networking activities. In 2010, Addis was invited to write an article for *Construction Manager*, the official magazine of the Chartered Institute of Building with a circulation of around 42,000 [4]. He was also invited to contribute an article on philosophy in the workplace to a special issue of *Philosophy Now*, the world's highest circulation philosophy periodical [5]. In addition to numerous research presentations to academics in construction, education and philosophy [6], Addis has given invited talks at several industry events hosted by Constructing Excellence and attended by representatives from major construction companies and consultants to the industry [7]. Along with Boyd, he contributed a Briefing Note [8] to the Construction Industry Research & Information Association (CIRIA) and gave a presentation to CIRIA's Construction Productivity Network in 2010 [9].

These dissemination activities resulted in consultation by the National Federation of Builders (2010) about ways to enhance membership services, including appreciating the limits of online delivery, and the Association of Project Managers (2011) about how expertise management could inform conceptualisation of accreditation procedures. The dissemination activities also led to work with a further construction company, Willmott Dixon, in 2011. The Project Manager at the company called the collaboration with Addis and Boyd "significant in shaping our practice" and explained how the experience of working with the academics

challenged us to think differently about how we go about construction projects – not simply using automated systems in our work, but empowering the skilled tradesmen to take decisions ‘on the ground’ based on their expertise in this area. This research was extremely valuable to us as we sought to implement a step change in the working culture of the organisation. These findings helped to challenge conventional wisdom that existed in the construction industry and stimulate debate amongst stakeholders [...], showing the need for a more nuanced approach to complex project management. [10]

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

1. Testimonial from Business Improvement Director, Highways Division, Mouchel Ltd.
2. Testimonial from Associate, Rider Levett Bucknall Ltd.
3. Testimonial from Director, Thomas Vale Construction Ltd.
4. Addis, M. (2010) Expert comment ‘The Thinking Man’s Industry’, *Construction Manager*, Nov/Dec 2010: <http://www.construction-manager.co.uk/news/thinking-mans-industry/>.
5. Addis, M. (2013) ‘Philosophy in the Workplace’. Special issue of *Philosophy Now*, 95: [http://philosophynow.org/issues/95/Philosophy\\_in\\_the\\_Workplace](http://philosophynow.org/issues/95/Philosophy_in_the_Workplace) (ISSN: 0961-5970).
6. Invitations to speak at major conferences and seminar series at the University of California at Berkeley, Kings College London, and the Association of Researchers in Construction Management. Organisation of a number of events, including *Understanding Expertise* at the London School of Economics (26/02/12), which featured a Director of Constructing Excellence, and the *Theorising Expertise* conference at the Institute of Philosophy at the University of London (15-16/03/12).
7. Industry presentations: *Building Expertise*, Constructing Excellence Ethics Symposium (London, 08/03/11); *Profiting from Expertise: A Simple Approach to Developing Your Company Through Working with its Expertise*. Constructing Excellence Members' Forum (London, 24/02/10).
8. Boyd, D. and Addis, M. (2010) *Profiting from Expertise*. Construction Industry Research & Information Association (CIRIA) briefing note July 2010 (Ref: 05-04-10): <http://bit.ly/addis-expertise>.
9. *Improving Productivity with Expertise*. CIRIA Construction Productivity Network (Birmingham, 23/03/10).
10. Testimonial from Project Manager at Willmott Dixon Ltd.