

# Interprofessional Learning: Reasons, Judgement, and Action

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This article makes a number of interconnected arguments. First, spatially and temporally distributed project teams constitute a new form of interprofessional work and, as a corollary, a new site for interprofessional learning. Second, researchers in cultural-historical activity theory have generated some concepts and methods, for example, “placeless organisations” (Nardi); “object of activity” (Leont’ev); “knotworking” (Engeström) and “relational agency” (Edwards) that can be used to analyse this new form of working and learning. Third, that when these concepts and methods are supplemented by Guile’s (2010) “mediated expressions of learning,” it is possible to provide a new conceptual framework to analyse the interplay between interprofessional working and learning. Finally, that this new framework enables researchers to shed light on the mediated relation between reasons, judgement, and action in interprofessional activity. This article explores this claim through an analysis of a critical incident that occurred in an interprofessional team working in the Creative and Cultural Sector in the United Kingdom.

## INTRODUCTION

The concept of mediation has served, as Engeström (1999) acknowledged, not only constitutes “the unifying lifeline that runs throughout the work of Vygotsky, Leont’ev and Luria” (p. 29), but also the work of writers, such as Lave and Wenger (1991) and Wertsch, Del Rio, and Alvarez (1993) who have been influenced, directly or indirectly, by those writers. Mediation is the central focus of this article; however, the conceptual and substantive exploration of this concept focuses on a number of issues that have been relatively unaddressed in *Mind, Culture, and Activity (MCA)*. The conceptual issue is the mediated relation between reasons, judgement, and action, and the substantive issue is interprofessional learning.

This claim may surprise many readers. The ways in which (a) institutional priorities are embedded in talk and influence professional reasoning and action (Mäkitalo & Säljö, 2002) and (b) professional expertise influences reasoning and action (Edwards, 2010; Hall, Stevens, & Torroba, 2002), has been discussed in *MCA* and/or in related publications. Moreover, much of Yrjö Engeström’s considerable and highly influential body of work has been concerned with a particular manifestation of interprofessional learning, namely, supporting cross-sections of an

organisation's workforce to rethink the object of their activity and to develop the forms of expertise to implement the new object (Engeström, 2001, 2004, 2008). Moreover, Anne Edwards and Harry Daniels (Edwards et al., 2009), two ex-editors of *MCA*, with other colleagues, have published a book that is specifically concerned with a distinctive form of interprofessional learning: interagency learning. On closer inspection, however, the aforementioned claim is less startling. Mäkitalo and Säljö and Edwards are primarily concerned with professional/interprofessional reasoning to accomplish and/or modify regularly recurring activities in institutional settings, whereas the work of Engeström, Daniels, and Edwards is based on the Developmental Work Research (DWR) methodology and, as such, constitutes a research intervention to facilitate the transformation of well-established activity systems.

The focus of this article is, however, the emergence of spatially and temporarily distributed interprofessional project teams that are concerned with the creation of a new product or service. Specifically, the article explores the way in which such teams and their members identify sources of finance for interprofessional activity, create a normative context for their activity, engage in practical reasoning to form and share judgements with one another, and collectively agree to appropriate courses of action.

The article explores the issue of interprofessional working and learning in the following way. It starts by outlining the nature of working and learning in the Creative and Cultural (C&C) sector—the site for the empirical investigation—and the distinctive form expertise required for working in large swathes of the sector. It then moves on to describe the approach adopted to conceptualise the work of distributed interprofessional project teams and to analyse the creation of a new object. The article draws on four main ideas. The first idea is Nardi's (2007) notion of "placeless organisations," which refers to the forms of activity that are distributed over a multiplicity of sites and therefore require sophisticated forms of cross-site coordination. The second idea is Leont'ev's (1978) notion of the "object of activity" to explore the objectification of what matters for an individual where there is a constant dialectic between subject and object. The third is Engeström's argument that "co-configuration" constitutes a new principle for analysing forms of work, where producers and consumers contribute to the formulation of a new object. Finally, this article draws on a number of Guile's (2010) mediated expressions of learning—"restructure," "reposition," and "recontextualise"—to deepen our understanding of how members of interprofessional teams explain their process of reasoning to one another, learn to infer what follows from the insights and suggestions made by someone with another source of expertise, and learn to agree on appropriate courses of action in relation to those insights. Following the use of the aforementioned concepts to analyse a critical incident that surfaced as a distributed interprofessional team in the C&C sector worked collaboratively to create a new piece of public art, the article concludes with a number of observations about the contribution of objects, reason, and expertise to interprofessional working and learning.

### THE C&C SECTOR: CONTEXT AND EXPERTISE

The C&C sector consists of craft industries, such as art and design; 20th-century media industries, such as broadcasting, film, and music; and new media industries, such as web design,

video games, and the information technology industry (Florida, 2002; Howkins, 2001). One hallmark of the C&C sector, transnationally, is that the profile of the clusters and industries that comprise it in our present-day economy are rather different from the historical profile of economic sectors such as the automobile and pharmaceutical industries (Florida, 2002). The latter industries were characterised by strong national identities and vibrant corporate sectors with strong “strategies,” “structures,” and “systems” that facilitated the manufacturing of standardised products and services (Bartlett & Ghoshal, 1997). Although globalisation has transformed patterns of ownership and competitive strategies and work organisation in those industries significantly, they still tend to be characterised by multinational companies while being involved with large-scale production. In contrast, the profile and structure of the C&C sector is characterised by a mix of a small number of global corporations, such as Apple and Sony, and national organisations, such as the British Broadcasting Company, with very large numbers of small and medium-size enterprises (SMEs) and the spread of freelance work. Moreover, the organising logic of work in large swathes of the C&C sector is based, on what Midler (1995) referred to as “projectification.” By this he meant that the C&C sector is characterised by spatially and temporarily distributed project teams that are assembled to create new products and services and with members who then redistribute themselves within the wider project ecology to work on new projects.

One consequence of projectification is that the C&C sector is characterised predominantly by “external labour markets” (ELMs). These labour markets are determined by the acquisition of contracts, which last for the duration of the life of the creation of a product or service and, as a consequence, make individuals responsible for their training and continuing development (Deuze, 2007). Contrasting this are traditional industrial sectors, such as the automobile, engineering and medical sectors, and the nature of their respective labour markets (Ashton, 1993). Historically, the latter have been characterised by strong “occupational labour markets” and firm-specific “internal labour markets” that have historically offered people permanent positions, initial training, career pathways, and access to continuing professional development.

As a recent report for the European Union (KEA European Affairs, 2006) observes, ELMs position aspiring entrants to the C&C sector, as well as long-standing members, as “in-betweeners,” that is, situated between capital and labour, because

the traditional categories of the “full-time job society” (“here the worker, there the employer”) no longer apply; the cultural content worker is suddenly also a (cultural) entrepreneur (without capital). In academic literature the “new worker” is described as multi-skilled, multifunctional and flexible in working time as well as often being self-employed. (p. 91)

Operating in this in-between position requires a distinctive form of entrepreneurial and vocational expertise that Guilé (2007) characterised as “Moebius-strip” expertise. He used the image of a looped ribbon twisted once to convey the idea that SMEs and freelancers have to, on one hand, maximise their social capital—that is, networks and connections—to search for sources of entrepreneurial funding to realise their creative visions. On the other hand, they must deploy their vocational expertise to suit each commission they successfully secure or are invited to contribute to, rather than operate with a given application of expertise.

## THE CREATION OF A NEW PRODUCT AND/OR SERVICE: CONCEPTUAL ISSUES

There have been a number of classic studies emanating in actor-network theory (Latour & Woolgar, 1979; Mol & Law, 2002), Management Science (Nonaka & Takeuchi, 1995), Innovation Studies (Von Hippel, 2005), Workplace Studies (Luff, Hindmarsh, & Heath, 2000) and cultural-historical activity theory (CHAT; Engeström, 2008; Miettinen, 2009) over the last decade that have researched the formulation and instantiation of new products and/or services. One common feature is that researchers have focused on stable organisational settings, even if they were under considerable pressure to change, and the development of new versions of well-established products and/or services. To study the process of innovation, researchers have used a range of units of analysis, for example, “networks” (Latour, 1993), “activity systems” (Engeström, 2008), “teams” (Nonaka & Takeuchi, 1995), and “conversations” (Luff et al., 2000).

Work in many of the industries that comprise the C&C sector is stretched between a diverse range of settings, for example, offices, studios, coffee bars, and field locations (Bilton, 2007). It also consists of teams, networks, and individual activity and is facilitated by a mix of face-to-face and mobile communication. Moreover, although these forms of work, like traditional forms of work, are characterised by a division of labour; producer-user communities; and a mix of legal, institutional, and self-generated rules, the character of the division of labour, communities, and rules is not pre-given. Instead it emerges as members of distributed project teams negotiate the pattern of work and the combinations of expertise required for different phases of the creation of a new object (Midler, 1995). Given these conditions, the challenge for researchers who are interested in studying the creation of a new product/service in the aforementioned spatial and temporal conditions is to identify an appropriate unit of analysis and methodological strategy.

The former issue was recently addressed by Nardi (2007). She used the term “placeless organisations” to denote those forms of work that do not take place in the classic, social science definition of a site of work, that is, a physical building where people congregate on a regular basis, concerned with a recurring object of activity. In contrast, Nardi (2007, p. 5) pointed out that the work of some types of organisations, for example, the National Ecological Observatory Network, Doctors without Borders, and Free/Open Source Software, is distributed spatially and temporally, over a range of changing sites. She summarised their defining characteristics as follows. They have

- a “transformative object,” that is, a commitment to continually change and/or vary the purpose and the mode of organisation of an activity;
- participants who come from multiple and diverse organisations/networks;
- activities that are conducted at multiple, shifting sites;
- an organisational structure that tends to consist of a small hierarchy, plus distributed vetted participants; and
- participants who are not in a traditional relation of full-time paid employment.

Nardi (2007) argued, along with other writers such as Foot (2002), that Leont’ev’s concept of the object of activity offers the ideal starting point for studying the work of such organisations and the formulation of new networks because

by starting analysis with objects, rather than an assumed form of organization, new forms within which objects are constructed and instantiated become visible. The consequence of taking activity as the starting point of analysis is the discovery that within and beyond firms people are organizing themselves in new ways to transform [and, create] practice. (p. 5)

The first step in using the object of activity to analyse the creative process is, according to Nardi (2005, p. 40), to identify how members of placeless organisations (hereafter, *distributed project teams*) “co-construct” a new object. The concept of co-construction has gradually become part of the conceptual repertoire of CHAT as researchers have recognized that it offers a way to analyse the involvement of different parties in the creation of practice (Engeström, 2008). In particular, it offers a way to move beyond the restrictions of, what Kaptelinin (2005, p. 13) recently referred to as, the overly restrictive nature of Leont’ev’s “1:1:1. correspondence” between “activities, needs and motives,” and enable researchers to address the challenge of “poly-motivated” activities. This is an important development, because Leont’ev assumes, as Kaptelinin, that “the sense-making motives or motives with a higher rank in the hierarchy of motives, will always determine the course of activities, and that objects of activity do not change over time” (p. 14).

Nardi’s argument may seem a regressive move when set alongside Engeström’s (2001, 2007, 2008) compelling case that his body of work constitutes the “third generation” of activity theory. After all, the concepts that Engeström formulated—for example, “activity system,” “boundary-crossing laboratory,” “cycle of expansive learning,” and so on—have provided CHAT with a conceptual framework and methodology to not only research the historically changing conditions of work—from craft to social production—but also to identify the processes that are required to support individual or networks of activity systems to rethink the object of their activity. An accusation of conceptual regression would, however, be misplaced. Nardi does not couch her argument about placeless organisations as a criticism of Engeström’s concepts and methodology. Instead she draws to our attention the existence of sites of work that are less rooted spatially, temporally, and institutionally and the challenge of how to research such transient and distributed activity. Nardi argued, like Edwards (2010, p. 5), that a focus on how people engage with the concept of the object of activity allows researchers to identify why and how new practices are created, and how these practices facilitate the creation of new artefacts.

Leont’ev concept of the object of activity rests on the principle of object-relatedness. This means, as Stetsenko (2005) observed, that material objects are “turned into facts of mind (i.e. become represented in subjective images) through an active process of humans relating to those objects” (p. 75) and that, although these images are individually understood and engaged with, they are never a purely individual accomplishment, because they are absorptions of the collective experience of people. Thus, from Leont’ev’s perspective, the psychological is the product of human practical, cultural, and social activity; Leont’ev (1978) explained the way in which object-orientated activity mediates our experience of the social world through his concept of “object motive”:

The main thing which distinguished one activity from another, however, is the difference of their object. It is exactly the object of an activity that has given it a determined direction. According to the terminology I have proposed the object of activity as its true motive. (p. 62)

This line of reasoning implies in the case of professionals, as Edwards (2010) observed, that they are likely to interpret a similar issue in slightly different ways because “they are located within different practices where the motives for engagement with the object of activity are also different” (p. 7). This observation reminds us that it is important for any analysis of interprofessional activity to first take account of the cultural-historical constitution of the field of that activity as well as the reasons why the members of that field are keen to vary or radically change the tradition associated with the field and, second, to capture the “dialogic interaction” (Foot, 2002, p. 145) between members of the distributed project teams’ collective personal experiences, their relationship to others with whom the object is being pursued, and the cultural-historical traditions that are currently influencing or that might, in the future, influence the successful accomplishment of the task at hand.

The multivoicedness of conventional teams, let alone distributed project teams, provides a way to make a link between a focus on participants’ engagement with the object of their activity as a conceptual starting point, analysing spatially and temporally distributed forms of activity and co-construction, and Engeström’s notion of “co-configuration.” Engeström highlighted that different principles of production position people to engage with the object of activity in different ways. Therefore, positioning exercises a strong, albeit often hidden, bearing on contributions and communication in the workplace. Elaborating and extending Victor and Boynton’s (1998) typology of the historical development of production, Engeström (2008) highlighted the significant difference, for example, between the way in which people are positioned in relation to the object of activity, in “process enhancement” (the widely accepted dominant principle for the organisation of work in advanced industrial societies), as compared to co-configuration (an emerging principle for the organisation of work in such societies; p. 191). In the former mode, the object is a pre-given feature of a particular form of work. For example, in automobile production, the locus of agency lies within teams that have a very circumscribed remit for changing or varying production, and thus the dominant mode of interaction is based on cooperation amongst team members in relation to their collective responsibilities, and the coordinating mechanism is a form of process management, in other words, monitor adherence to pre-given performance standards (Engeström, p. 226). In contrast, co-configuration positions people in a radically different way toward the object because this mode of production assumes collaboration, amongst producers and consumers, in relation to the formulation and instantiation of the object. Hence, the locus of agency lies in the strong communicative relations and interactions that occur between producers and consumers, and the principal coordinating mechanism is heterarchical, that is, responsibility for decision making is devolved to different constituencies (Engeström, 2008, pp. 19–20).

This principle for the organisation of work encourages multivoicedness amongst all the parties contributing to the creation of a new object. In Engeström’s DWR research methodology, the deliberations of participating members of single or networks of activity systems are captured in a boundary-crossing laboratory by video. Their discussions are recorded and their conversations analysed. In spatially and temporally distributed and polymotivated project teams, it is very difficult to establish a boundary-crossing laboratory. This is because such project work occurs synchronously and asynchronously in an ever-changing range of settings. Nevertheless, it is still important to capture the reasons that influenced the establishment of the project as well as team members’ dialogues and debates about how to deploy their individual and collective expertise to realise a new object. On one hand, the reasons behind polymotivated engagement with a new



object are a powerful influence on the agreements that are formed about the design of a new object during the formulation phase. On the other hand, ideas and suggestions that team members put forward during the instantiation phase are underpinned by different types of reasons, and the extent to which these reasons are understood mean that they exert an implicit or explicit influence on team members' deliberations, fine-tuning of suggestions and any compromises that have to be made in order to fabricate the new artefact.

### CONCEPTUALISING THE CREATION OF A NEW ARTEFACT IN SPATIALLY AND TEMPORALLY DISTRIBUTED PROJECT TEAMS: CONCEPTUAL ISSUES

The approach adopted in this article to researching interprofessional working and learning in spatially and temporarily distributed project teams draws on two of the aforementioned ideas—Engeström's concept of co-configuration – and Nardi's notions of formulation and instantiation—to conceptualise the creation of a new object. It supplements these notions with Guile's (2010) mediated expressions of learning to highlight the phases of learning that occur as members of a project team struggle to resolve a dilemma associated with the design of the new object.

In common with other writers, such as Bakhurst (2007) and Derry (2007),<sup>1</sup> Guile argued that there is a parallel between Vygotsky's (1987, p. 220) concept of the zone of proximal development and McDowell's (1996, p. iv) concept of the "space of reasons." The former refers to the way in which we are supported by a more experienced person to rethink our existing ideas about the world as we are introduced to a new theoretical concept, gradually come to understand the meaning of that concept, and begin to appreciate how theoretical concepts offer us insights into the natural and social world that are all too often undetectable by sensory perceptions. The latter refers to the idea that, "in characterising an episode or a state as that of knowing, we are not giving a logical description of that episode or state; we are placing it in the logical space of reasons, of justifying and being able to justify what one says" (McDowell, 1996, p. iv).

Thus from McDowell's perspective, theoretical concepts are underpinned by a web of connections and relations that are based on reasons and that we use our growing understanding of these reasons to not only establish the meaning of theoretical concepts but also communicate our understanding to other people. The common ground between Vygotsky and McDowell, according to Guile (2010), is that they have a shared, albeit different, focus on the way in which learning new concepts can result in a "restructuring" of thought. The former is concerned with identifying the pedagogic processes and the latter with the warranting processes that facilitate the reconstruction of thought.

There is also, according to Guile (2010), a parallel between Engeström's (1987) idea that members of activity systems require a special place—a boundary-crossing laboratory—and a special pedagogic process—the cycle of expansive learning—to reposition them in relation to the object

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<sup>1</sup>The common link between Bakhurst (2007) and Derry (2008) is a concern to draw on the work of McDowell (1996) to restore the concept of reason to the centre of philosophical debates about what is distinctive about the CHAT tradition. Derry is also interested in using the work of Brandom (2000) to identify what is distinctive about the cultural origins and development of human cognition. Although I share both of these concerns, the focus in this article is to use the significant parallels between the corpus of CHAT and Brandom and McDowell to explore what is distinctive about interprofessional learning.

of their activity in order to rethink that object, and Brandom's (2000) argument that we learn to locate concepts and ideas in the space of reason by using the "social practice of giving and asking for reasons" (p. 3) to infer what does or does not follow from a conversation or a text. Although Brandom and Engeström are concerned with slightly different purposes—to establish meaning and to change practice—the common ground, according to Guile (in press), between the respective processes that they employ to enact those purposes is the way they explicitly or implicitly use the concept of inference. Learning, for Brandom, entails using our rational reconstruction of the meaning of a concept or practice to locate them in the space of reasons, and using our understanding of the concept and/or practice to infer what follows for thought and/or action in relation to the task at hand. In contrast, learning, for Engeström, entails creating and agreeing the collective meaning of a new object and then inferring on the basis of that agreement what follows for the reorganisation of the division of labour, rules, and community in an activity system. One feature of both of these learning processes, according to Guile (2010, p. 151), is that people are "repositioned," albeit in different ways, in relation to the object of their activity: Rational reconstruction results in a deeper understanding of the meaning of a concept or practice and, as a result, an enhanced capacity to use either of them, whereas expanding the object of activity provides people with a way to escape from the double binds that inhibit working and learning in activity systems.

The claim that rational reconstruction can result in an enhanced capacity to use a concept or practice in a new way is elaborated by Guile (2010) through reference to van Oers's (1998) notion of "recontextualisation." This term was chosen by van Oers to convey idea that, first, when we learn a new concept and/or practice we do so in a specific context and in relation to an object of activity and, second, that when we use them in another context and in relation to another object of activity we change their meaning subtly or significantly. The notion of recontextualisation provides therefore a language of description for how we use our understanding of a new concept and/or practice to help us to accomplish the object of our activity in educational and/or workplace contexts.

It is the contention of this article that the notions of restructuring, repositioning, and recontextualising offer researchers resources that they can use to analyse the phases of learning that occur within spatially and temporarily distributed interprofessional project teams. The notion of restructuring provides a way to identify how people in such teams gradually come to engage with concepts and practices that are not part of their disciplinary tradition or normal work practice. It reminds us that when we encounter a new concept or practice, they do not nullify our existing concepts and practices; rather, they offer us new resources we can use to consider how to address the task at hand. The notion of repositioning alerts us to the pedagogic processes that will have to be established and sustained by project teams to support members of the team, individually and collectively, to use new concepts and practices as resources to think differently about their task at hand. Finally, the notion of recontextualisation can be used to identify the way in which members of a project team have used conceptual and/or practical resources to support an existing activity to further unfold or to tackle a stubborn problem within an existing activity.

The argument just presented is that the concepts of the object of activity and co-configuration in conjunction with the notions of restructure, reposition, and recontextualise provide a constellation of ideas and concepts to analyse interprofessional working and learning. To illustrate



this claim, the article now draws on a critical incident that surfaced as a distributed inter-professional team in the C&C sector worked collaboratively to create a new piece of public art—T-House.

## RESEARCHING THE CREATION OF T-HOUSE

### The Project Team and Its Object

Before discussing the methodological issues associated with researching the creation of a new object—T-House—by a spatially and temporarily distributed project team, the article starts by explaining the context for the T-House project.

This project was a fusion of economic and aesthetic imperatives. The main economic imperative arose as a result of the publication in the United Kingdom of the *Cox Review of Creativity in Business* (2005). This report affirmed the centrality of interprofessional expertise to the competitiveness of the U.K. economy. In doing so, the report created a climate of interest amongst U.K. policymakers nationally and regionally to fund projects that fostered the development of these ways of working. This development reinforced the commitment of (a) City Councils—in this case, Birmingham City Council that had already devised policies to assist their C&C sectors to support economic regeneration—and (b) SMEs that specialise in the forms of entrepreneurial activity in the form of commissions, residencies, exhibitions, and touring activities to support the development of artistic practice, in this case, VIVID E-mail: (info@vivid.org.uk), to consider how to respond to the new policy context. Interchange, part of Birmingham City Council's Economic and Development Department, and VIVID worked collaboratively to draft a proposal to support inter-professional working and learning in Birmingham's C&C sector. Using their network of contacts, VIVID invited a number of SMEs and freelancers to present ideas for inclusion in the proposal while Interchange coordinated the logistical and financial aspects of the proposal. Following a protracted assessment process, funding was secured in 2005 from the European EQUAL Project, which was overseen in the United Kingdom by the Department of Work and Pensions.

One of the projects funded was T-House. It was the brainchild of an artist, Colin Pearce, and an architect, Ranbir Lal, two freelancers who had previously worked together on other interdisciplinary projects. Pearce and Lal were keen to extend their expertise in this mode of working partly as a result of their developing interest in Bourriard's (2002) concept of "relational aesthetics." Bourriard formulated this concept to further the debate in Fine Art sculpture (Bishop, 2005) about the inter-human-artefact relation that is produced or prompted, irrespective of context, when art objects are located in the public environment rather than in the traditional "white cube" (i.e., gallery). Pearce and Lal chose the idea of a Japanese tea house, and to a lesser extent the English garden pavilion, as the source of inspiration to engage with this aesthetic idea. Their aim was to design a building, which could be located in an urban environment, that provided a focus for encouraging people to engage in new forms of activity as they shared a cup of tea.

Taking this theoretical and practical stance as their point of departure, Pearce and Lal drew up a number of possible designs for T-House. To move beyond this purely envisioning stage, a model maker, Robert Delves, was commissioned to produce a wooden facsimile of the emerging object. During an early meeting between Pearce, Lal, and Kaye Winwood, VIVID's Project Manager, it was agreed that the facsimile of T-House would be displayed at several public consultation

events and that participants who attended the consultation would be invited to assist Pearce and Lal to further formulate their ideas about T-House by recording their responses to the artefact. This consultation process, which constituted a rather circumscribed form of co-configuration, reinforced Pearce and Lal's ideas that T-House should take a form that would be both a "place" and a "path," because participants responded very positively to the idea that T-House should be an artefact that people could walk around and be in at the same time (C. Pearce, personal communication, 2006).

Further research into the earliest meaning of the traditional Japanese tea house led Pearce and Lal (2007) to discover that

the tea house was known variously as an abode of fancy (in as much as it was built to house a poetic impulse) an abode of vacancy (devoid of any unnecessary ornament), and an abode of the unsymmetrical (as a place dedicated to the imperfect, purposely leaving some things unfinished for the imagination to complete). (§ 4)

This discovery redoubled Pearce and Lal's commitment to keep the structure as open as possible so that its use could be determined by future visitors as much as its designers. As they commented,

[T-House's] form—part architecture, part sculpture—unfolds like a monumental piece of origami, another Japanese influence subtly worked into the conceptual underpinning. Its folds and corners refuse to make conventional architectural shapes, [such as conventional walls or ceilings]. Here and there it suggests the makings of enough shelter to suggest a roof, has echoes of a gateway entrance at one end, but its surfaces never fully express the polite conventions of form married to function. Instead, what you see are surfaces where an interplay of light and dark takes place, . . . shapes twist and bend. (Pearce & Lal, 2007, § 6)

Given that Pearce and Lal were working on other projects alongside T-House, transition from the process of concept formation to the establishment of T-House in a public space took 12 months, from January 2005 to January 2006. The initial concept and first model emerged after the first six months. The open consultation events took place in June 2005 and the refinement occurred by September 2005. Contracts were issued in January 2006 to Mervyn Rodrigues and Associates, a firm of structural architects to advise on aspects of the construction of T-House, and to Eurban, a firm responsible for the coordination of the fabrication process. This contractual arrangement meant that the locus of control lay in the strong communicative relations between members of the project team. For example, the environmental issues raised by Kim Fichter Braun, Fabrication Coordinator, Eurban, led Pearce and Lal to agree that T-House should be built from wood because it has increasingly become a highly desirable material used throughout the building industry. Furthermore, wood has the additional advantages of being warm and welcoming to the touch and, as a consequence, more likely to invite people to have a closer relationship with the building.

The instantiation phase took nine months, from September 2006 to June 2007. Although the features associated with the traditional Japanese tea house were the primary influence on the formulation of T-House, the starting point for the instantiation phase was pure mathematics.

T-House is made from a single building block—a triangle with proportions of 3 to 4 to 5. This pure Euclidean geometry is an awkward . . . form for building. This unit is repeated many times over in T-House, and some rigid constructional rules are applied to how they fit together: each triangle is placed at 90 degrees to one another—no other angle is allowed. In theory this should assist the creation of a conventional building—where walls and ceilings sit at 90 degrees to each other. But not here; instead, there is a sequence of dynamic shapes and angles are created. (Pearce & Lal (2007, ¶ 5)

In light of these considerations, a number of meetings, involving different combinations of Pearce, Lal, Fichter Braun, Rodrigues, and David Noon, an associate of Mervyn Rodrigues, were held in Birmingham and London to discuss how to fine-tune the design in relation to various complications associated with fabricating the design.

### Research Methodology

The spatially and temporally distributed character of the interactions between the interprofessional project team (Pearce, Lal, and Delves lived in Birmingham, whereas Rodrigues, Noon, and Fichter Braun lived in London, as did the research team) presented the researchers with the challenge of finding a way to follow the formulation and instantiation phases. A combination of budgetary, location, and other work commitments meant that it was impossible to use a full-blown ethnographic approach, which is generally accepted in CHAT as the best way to investigate social practices (Roth, 2005), to observe and to tape and/or video record as many meetings as possible. Even if the budget had covered such costs in principle, it would have been very difficult to tape and/or videotape every meeting because they could veer from a studio, to a coffee house, or to an office and/or be rescheduled at short notice due to competing demands on members of the project team. Given these constraints, the researchers negotiated with the project team a multifaceted methodological approach that was designed to capture either discussions about or reflections on the formulation and instantiation phases of the new object, rather than follow every event that contributed to the unfolding of the new object. This strategy consisted of taping one-on-one meetings with Lal, Pearce, and Winwood to record their developing views about the formulation and instantiation phases; project development meetings between Pearce and/or Lal with Winwood where progress with the different phases of development were discussed; wider team meetings composed of different combinations of people addressing primarily instantiation issues; and attending the consultation events that influenced T-House's final form.

What follows is a discussion of a critical incident that occurred approximately two months before T-House was due to be installed in Birmingham. This incident has been chosen to illustrate the challenge of interprofessional working because the problem that arose, which involved all parties except Robert Delves, forced the team to reassess some of the structural and aesthetic ideas that had underpinned the formulation of T-House. The team meeting that discussed this incident was taped in accordance with a modified version of the principles of conversational analysis (Ten Have, 2007). To capture the situated character of practical reasoning and action as it arose contingently from the team's ongoing accomplishments, the tape recorder was placed in the centre of the four-foot-square low-rise table everyone was sitting around. The conversation was transcribed by employing a modified version of Heritage's (1984) ideas about the translation of overlapping speech and sounds. The primary concern of this modification was to represent as faithfully as possible the flow of the conversation in order to facilitate an analysis of the process

of reasoning about the problem at hand, rather than using Heritage's techniques to represent the double-edged reflexive, self-constituting character of the conversation. For the reasons just stated, four features of the conversation were highlighted: pauses were indicated by the use of a dot or dots inside curved brackets (.), co-occurring talk was indicated by the use of square brackets, inaudible talk was indicated by backslashes ///, and words or phrases that were emphasised were underlined.

### INTERPROFESSIONAL WORKING AND LEARNING: IDENTIFICATION AND RESOLUTION OF A PROBLEM

The team's members were sitting in Eurban's office in London, in low-rise chairs, around a square table, in the middle of which was a small model of T-House, approximately 18 inches long and six inches high. We joined the discussion nearly one hour after it started. Up to that point everyone had been re-reminding themselves about the concept of T-House, revisiting previous discussions about decisions related to the instantiation process, and aggregating a range of issues for which final decisions had to be made that day, in light of the looming deadline to install T-House in Birmingham. One outcome of the first hour had been to collectively reestablish their normal "workplace pedagogic process" (Guile, 2007). The main characteristic of these processes are that members of the team listen to one another, weigh-up competing and contending views about how to address known problems, and infer what follows as a result. David, one of the structural engineers, was just beginning to explain to everyone a test that he had conducted using very sophisticated vector software, which revealed a potential instantiation problem.

David: Well I've looked and there's considerable moment here (.), not just through the wind, when you look at the wind loading //// viewing it like this I loaded it in that direction because it's got a dominant opening here and it will get /// when I checked it for stability. And if you load these //// and have the negative stability on them as well, I don't actually see how you get a timber joint that works there.

David invoked the notion of "negative stability" to explain aspects of the design of T-House, which were not susceptible to sensory perception and were also missed by Ranbir when he used a software package to design the building. In doing so, David revealed that T-House, at that moment in time, was potentially unstable. Specifically, David used the concept of negative stability to explain that one of the lines of T-House's triangular features was not straight and to proffer reasons why it would be structurally unsound and therefore environmentally unsafe. In doing so, David paved the way for the other members of the team to begin to collectively reposition themselves in relation to their shared aesthetic conception of the object of their activity and their technical understanding of the stages of instantiation, by reconsidering whether they might need to be revised.

Colin was the first to respond to the process of being repositioned in relation to the current design for T-House. He related David's comments about safety to another Health and Safety issue that had recently been drawn to Ranbir's and his attention in a meeting with representatives of Birmingham City Council.

Colin: This is very important because (..) we were told the other day that the only thing the city council who (..) were talking to people organising the whole site on which this is going, have said that what we must deal with is the wind issue, because of the famous case last year when a public piece of sculpture got blown away and killed two people (...), so yeah (.) they're seeing a similar connection between this project and that project so the issue of the wind loading is something that we need to clear up.

Using the previous accident to anchor the conversation, Colin expressed his personal concern that T-House should be installed in the environment in a way that would not jeopardise the public's safety. He did not, at that point, fully comprehend the looming problem to which David's observations were intended to alert the team. Consequently, Colin was still clinging to the original vision for T-House, rather than beginning to restructure his attachment to this vision and comprehend that it would have to change in some, as yet, unspecified way. Melvyn, the other structural engineer, and Ranbir, the architect, had, however, grasped the implication of David's observations and began to comment in ways that gradually enabled all the team to infer the aesthetic and technical implications that followed from David's comments.

Melvyn began the process of delineating the considerations that helped the team to bear down on the problem by directing their attention to the points in the design of the model of T-House on the table that were potentially a problem. Before he could complete his thought, David stated very precisely that a tie (of some indeterminate sort) may be required to stabilise T-House.

Melvyn: if there was (.), say there was a tie

David: [a tie between there and there]

At that point, Colin interjected and stated,

Colin: but I thought we were going to take a cable round inside this edge in order to deal with things like that.

Returning to an agreement from a prior meeting that any mechanisms to stabilise T-House should be invisible to the public, Colin reminded everyone that they had already anticipated that it might prove to be tricky to stabilise T-House in the environment. This has led them to incorporate a number of additional and invisible stabilisation mechanisms into the original design of T-House.

Colin's comment prompted Ranbir to observe,

Ranbir: well previously I thought this and that was a straight line, and that was just a //// so we do have a crank, that could still work because (..) you could still have a tension which goes through there and down there, but whether we want it to be a tension member or be a tension member and a prop ///

In passing this observation, Ranbir reminded Colin that the prior agreements had been predicated on the assumption that all the lines in T-House would be straight. In light of the information from David that one line was not and therefore the structure was potentially unsound, Ranbir made clear to Colin and the rest of the team why the prior mechanisms for stabilising T-House would

have to be rethought. He initiated this process by speculating about the form of stabilisation—a tension member or a tension member and prop, in other words, ways of securing T-House to the ground—that might be required.

Ranbir's comments led Colin to grasp what else the stabilisation process might require. He immediately and quizzically asked whether this meant there would be a need for some form of foundation to attach the prop to.

Colin: we are anticipating the need for foundations (.) are we?

Ranbir and David took up this issue by discussing some options for combining the tension member and prop.

Ranbir: so you don't really want a series of angles going on to flap, unless you can shim them (.) but then if you don't shim them then you've got to then cover that angle. Whereas if we had a series of dowels, part of the dowels could take the load, and the dowels could be threaded bars with a washer on them, and you get your bearing stresses onto that. The only thing is that we need to make sure it doesn't fly away, so we need to make sure that this anchorage is sufficient so that it's long enough and with deep enough pockets so that it anchors it so ///.

David: [the structure weighs three and a half tons].

Ranbir: right, right. It won't necessarily fly away, but it might tip over.

David: so if you're going to do that, how about if the cable is going to go down to the ground on that side, how about having it go down to the ground around here? Then it is stable, from either direction.

As they tested out their respective ideas for doing so, Ranbir and David began to speculate as to whether the greatest problem was that T-House might fly away in a high wind or whether the wind or some other form of pressure, for example, people leaning on it, might lead T-House to tip over. This speculation led Ranbir and David to suggest that tension members, ties, and dowels might become integral features of the stabilisation solution. As they engaged into this discussion, David and Ranbir proffer a number of suggestions about how the dowels, and so on, might be creatively deployed in relation to the minor design fault generated by the idiosyncratic nature of T-House's structure. The detailed nature of their discussion about recontextualising the normal use of dowels and other items to enhance the existing stabilisation mechanisms, however, triggered an immediate response:

Colin: That's gonna be a huge visual problem. I mean if I'm (.) I'm asking that because I think I'm (.) accepting that I can see a problem for the engineers, a problem for us about vandalism, I can see that somebody might want to come and break this here, /// so I think the two of us accept that we (.) might want to take something down to the ground here, both to protect the structure, to make it structurally strong enough. We're wondering, (.) if that would be it (.) because if we have to do any other supporting work to the thing it's going to (...) lose a lot, for us, you know in terms of its aesthetic.

Although he accepted that the health and safety issues are a paramount concern, Colin was equally concerned to retain T-House's aesthetic integrity. The process of repositioning that David initiated has led Colin to appreciate that the measures being proposed by Ranbir and David to stabilise



T-House would have profound consequences not only for its visual impact in the environment but also because it may deter people interacting with it in such a way that they could engage in new forms of activity. Colin's observation that whatever solution would be agreed upon to address the structural problem should not overly compromise the aesthetic vision gradually had the effect of repositioning David, Mervyn, and Ranbir in relation to their initial deliberations about how to stabilise T-House.

David: we could perhaps strengthen it at the end here

Ranbir: [with a fillet?]

David: where it needs it somehow or other (.) yeah (.) just an idea

Mervyn: the other thing is taking your idea (.) yeah screw it like a gusset that went (..), no but really it would have to go like that, I think (.) it couldn't go like that

David: [it's got no lever or has it?]

Colin: I can see that maybe you need more time to think about it because you've got to do the calculations (..) and I can appreciate that you're worried about whether the timber structure is strong enough (..) so you are going to have to come back to us with what is essential. I mean if we don't need all this wiring then great

As they took account of Colin's concerns, David, Mervyn, and Ranbir gradually restructured their first thoughts in regards to how to enhance the stabilisation mechanisms that could be added to T-House. Instead of focusing on T-House's most exposed triangular point, they identified how the stabilisation mechanism could be added to a less exposed triangular point. This less visible stabilisation solution meant that a better balance could be struck between the aesthetic and technical issues. As a consequence, Colin felt relaxed about providing David, Mervyn, and Ranbir with the space and time to work out the detailed calculations for the new suggestion. The meeting closed not long afterward, with everyone confident that the new solution successfully addressed the initial health and safety problem without overly compromising T-House's aesthetic integrity.

## INTERPROFESSIONAL WORKING AND LEARNING: CONCEPTUAL IMPLICATIONS

### Interprofessional Working

By following the teams' engagement with their object of activity, the following picture emerges of spatially and temporally distributed interprofessional project work. It is a form of working that arises as organisations and people commingle spheres of separate activities, which are each characterised by their own object and dynamics, into a new pattern of activity. In the case described in this article, one sphere is the new national policy context in the United Kingdom for supporting interprofessional learning, another sphere is the ways in which Interchange linked the role of the C&C sector in supporting economic regeneration to interprofessional learning, and a further sphere is the core of SMEs and freelancers in Birmingham's C&C sector who were interested in diversifying their expertise by working on an interprofessional project. The trigger for the commingling of these different spheres of activity was Interchange and VIVID's collective interest in creating conditions to support interprofessional working and learning. The reason for the interprofessional project was Interchange, VIVID, and the SMEs' (in the case described in this

article, Pearce and Lal) deployment of slightly different, but complementary, forms of Möbius-strip expertise. Interchange mobilised their knowledge of potential sources of funding to resource the overarching interprofessional project. VIVID liaised with their network of contacts to identify potential partners who were keen on enhancing their creative reputations by contributing to an interprofessional project. The participating SMEs commingled their respective vocational expertise to create a diverse range of creative interprofessional projects.

The new overarching interprofessional project coordinated by VIVID, which consisted of several separate but related interprofessional projects, constitutes a new activity for VIVID and the other participating SMEs and freelancers. This new activity has some affinities with, as well as differing in some significant ways from, Kaptelinin's notion of polymotivated activity and Engeström's concept of co-configuration.

In the case of Kaptelinin, the distinctive feature of this new activity is that it is polymotivated: A diverse range of motivations created the context for the overarching new activity of which VIVID's project was just one aspect, and a diverse range of motivations influenced formulation of the concept of T-House that generated the moment-to-moment changes in preference which, in turn, impacted upon the fabrication of T-House in subtle and significant ways. Kaptelinin's primary concern is for the polymotivation of participants in existing and well-rooted forms of activity that is occurring in well-established activity systems, whereas the focus in this article is the diverse range of motivations from multiple contexts that contributed to the creation and realisation of a new activity that is constantly unfolding across different sites. For this reason, the article has endeavoured to extend Kaptelinin's ideas about polymotivation through the notion of the commingling of separate and unrelated activities and motivations. This has enabled the article to highlight the way in which the interplay between activities at the national and regional level created the context for the development of interprofessional activity in the C&C sector. The formulation of, in the case of the former, policies to support the C&C sector to contribute to economic growth legitimated the allocation of funding for interprofessional project, and, in the case of the latter, a private–public sector partnership generated the ideas and project management capacity to secure funding to devise and deliver a range of interprofessional projects.

In the case of Engeström, the formulation and instantiation of T-House could be considered a form of co-configuration because the locus of agency was clearly distributed across a number of parties, rather than being the sole responsibility of one party. The locus of agency manifests itself slightly differently in the work of spatially and temporarily distributed interprofessional teams compared with the accounts of the same phenomena in DWR research interventions. Participants in a DWR intervention are encouraged by researchers to exercise their agency to create a new object of their activity. This exercise of agency occurs, however, in “laboratory” conditions. This means it is, on one hand, mediated by the role of the researcher (Engeström, 2008) and, on the other hand, leaves participants with the challenge of securing the support of other colleagues to implement the new object of activity when they return to their workplace (Edwards et al., 2009). In contrast, the locus of agency in the T-House project team rotated around partners—one partner accepted responsibility for identifying sources of funding, another partner identified potential contributors, and other partners accepted responsibility for different phases of the process of fabrication—as they contribute individually and collectively to the creation of a new artefact. This revolving locus of agency, and as a corollary, sites for spatially and temporarily distributed interprofessional work, presupposes that the project team constantly create and re-create workplace

pedagogic conditions to facilitate discussion and deliberation amongst all contributing parties about an emerging object. This issue is discussed next.

### Interprofessional Learning

By following the teams' engagement with their object of activity, the following picture of interprofessional learning emerges. It is a form of learning that relies on members of project teams creating a normative context, based on agreed principles for working and learning. One principle is a commitment to listen carefully to one another and to avoid trying to deliberately destabilise another member of the teams' views and attachments to the current conception of the object. For example, although David initiated the redesign of T-House by sowing seeds of doubt in everyone's mind about the limitations of the current design, he did not engage in a zero-sum game of trying to trump his colleagues and state that because he had identified the design flaw, he was the ideal person to direct their attempts to resolving that problem. Instead, David initially affirmed his "occupational jurisdiction" (Bechky, 2003), that is, his professional delineation from other members of the team and the legitimacy conferred upon him by his domain of expertise, and invoked the concept of negative stability to reveal a problem that other members of the team had failed to spot. He gradually softened the potential impact of that affirmation of occupational jurisdiction amongst other members of the team by patiently allowing them to infer to one another the implications of his observations and then working collaboratively with the team to resolve that problem.

Interprofessional learning also relies on team members creating a zone of proximal development so that they can individually and collectively make explicit what is implicit in a concept, practice, suggestion, gesture, and so forth, by participating in the social practice of giving and asking for reasons. David's invocation of the notion of "negative stability" drew to the attention of the other members of the team that the design for T-House was potentially unstable. Initially, the implication of his comments was grasped more swiftly by Ranbir and Melvyn because, as an architect and structural engineer, respectively, they inhabited a space of reasons that gave them a shared basis for inferring, that is, restructuring their current understanding. What followed from the existence of negative stability was a different and stronger stabilisation mechanism. In contrast, Colin, who inhabited the same space of reasons as the other members of the team as regards to the aesthetic concept of and aspiration for T-House, as an artist, did not have a background in the principles of engineering and initially assumed that all that was required was a minor modification of the existing stabilisation mechanism.

In some ways, it is hardly surprising that Colin initially found it difficult to restructure his understanding. Learning to infer the meaning of a new concept (negative stability), which was shedding light on an aspects of the design of T-House that had hitherto been undetectable by sensory perception, entailed grasping the generalisation that lay at the heart of that concept and understanding the implications of that generalisation in relation to other related concepts in an unfamiliar professional field. Initially, this was tricky for Colin. Although David was proffering reasons for his judgement, he was doing so by drawing on assumptions about the use of vector software in relation to the fine details of architectural design that Colin was struggling to follow, rather than making explicit the other concepts and their attendant assumptions that informed

the inferences he drew from using the vector software as a final test, as regards the stability of T-House. The full implication of David's insight only became apparent to Colin as Ranbir, Melvyn, and David started to discuss new options to stabilise T-House. By listening intently to this conversation, Colin started to appreciate that the initial stabilisation mechanism could not be rectified through a minor modification that would remain undetected by those who would interact with T-House. This growing awareness of the nature of the problem repositioned Colin in relation to the existing design and led him to appreciate that a visible external mechanism would be required.

The process of being repositioned in relation to the flaw in the design of T-House was iterative rather than unidirectional. It was, translated into the terminology this article has introduced, the outcome of a series of conceptual restructurings on behalf of team members, rather than a matter of them merely nullifying their exiting attachment to the original design and automatically accepting that health and safety considerations would dominate over aesthetic considerations. Once Colin had understood that some form of external stabilisation mechanism would have to be attached to T-House, he triggered another round of conceptual restructuring amongst the team. Instead of proceeding to treat the flaw as a purely technical problem, Colin's concern that any solution would have to be mindful of the original aesthetic integrity of T-House forced David, Ranbir, and Melvyn to consider some subtle and less dramatic options to stabilise the building.

David, Ranbir, and Melvyn's initial attachment to the formulation of a sound technical solution to the design problem gradually gave way to a consensus that any solution had to be both technically and artistically viable. The initial momentum behind the restructuring of their thought was partly a result of Colin's passionate defence of his and Ranbir's artistic vision for T-House and partly a result of Ranbir's immediate agreement that artistic and health and safety issues should be considered in relation to one another. This momentum was consolidated, however, as David, Ranbir, and Melvyn began to proffer a number of different solutions to address the design flaw. On one hand, these suggestions were based on the recontextualisation of existing cultural tools from their professional field (e.g., dowels, etc.) to resolve T-House's potential instability. On the other hand, the suggested use of such tools was constantly tempered by David, Ranbir, and Melvyn's renewed collective concern to retain the artistic integrity of T-House. This discussion ebbed and flowed as David, Ranbir, and Melvyn offered reasons to justify their respective suggestions and revised their ideas on the basis of feedback from their colleagues to accomplish the aforementioned objectives.

## CONCLUSION

This article has employed a constellation of ideas, concepts, and methods to analyse the forms of interprofessional working and learning that occurs in the spatially and temporally distributed teams that are a feature of work in the C&C sector. At first sight, these forms of work could be viewed as similar to the "knots" of doctors, nurses and patients that Engeström (2008) has analysed. The constitution of the knots that Engeström has researched and the project team described in this article are, however, characterised by rather different logics and dynamics. Engeström (2008) defined knotworking as "characterised by a movement of tying, untying and retying together seemingly separate threads of activity" (p. 194). He makes it clear that such knots, which are rooted in "fluid" institutional and/or organisational activity, form because professionals and

their clients (e.g., teachers, social workers, and families) have a legal obligation, or are directed by policymakers, to work together to accomplish more effective outcomes from social policy (Engeström, 2008). In contrast, the interprofessional project teams found in the C&C sector form, as was pointed out earlier in the article, through forms of Möbius-strip entrepreneurial activity to first secure finance to fund the development of new products or services and secondly to identify the right balance of vocational practice (i.e., expertise) to accomplish the aforementioned goal and to negotiate contractual arrangements to procure SMEs and/or freelancers' services for the extent of their contribution to the project. As such, the project teams are characterised by transient collaborative activities that occur outside of institutional and/or organisational settings.

The approach adopted in this article to researching spatially and temporally distributed project teams is a multistranded methodology, consisting of interviews, observations, recording conversations, and postproject reflective discussions. These methods have been employed to identify the way in which the members of the project team (a) engaged with the object of their activity, (b) identified and established the pedagogic conditions to co-configure their expertise to create new artefact, and (c) resolved problems as they arose. In doing so, a number of issues about the contribution that reasons, judgement, and action interprofessional working and learning have been raised but not fully resolved.

The first issue is that the concept of reason plays a more prominent role in the constitution of a project team than is often acknowledged in the literature on project teams and/or professional expertise (see, *inter alia*, Collins & Evans, 2007; Hakkarainen, Palonen, Paavola, & Lehtinen, 2004; Krajewski & Ritzman, 2005; West, Borril, & Unsworth, 1998; Winch, 2010). The lead person(s) who has exercised their Möbius-strip entrepreneurial expertise to secure funding for a project choose(s) to invite other professionals to join the project team. They do so by first exercising their "relational agency" (Edwards, 2005), that is, their capability to recognise which combination of professionals will provide them with the right balance of expertise, and to work collaboratively with one another, to fulfil the tender (i.e., object of their activity) that they have secured, and second by engaging in, what Guille (*in press*), after Brandom (2000), referred to as the social practice of the "giving and asking for reasons." The particular manifestation of this social practice they engage in is being prepared to explain the reasons for their choices and decisions to persuade other potential members of the team. This is designed to convince other professionals to join, because not only does the team have the appropriate balance of expertise to accomplish its goals in a creative and imaginative way and therefore assist all members to further consecrate their professional reputations but also participation will extend the range of networks that team members will be able to call on in future to secure further work.

The next issue is that the exercise of professional judgement lies, as the prior discussion of the critical incident demonstrated, at the heart of interprofessional working and learning in two senses. The first one is the development of a capability to discern practically salient features of a situation in which an individual is acting. This capability presupposes sensitivity toward the requirements of a situation, so that any explanation or recommendation for a course of action is couched in terms of the features an individual perceives is relevant to the task at hand. Stated another way, it is a weighing up of different perceptual features of the situation—a "this one or that one" mode of deliberation—so as to identify the more relevant feature. The second one is the development of a capability to convey this understanding to other professionals who do not necessarily share the same conceptual framework and, as a consequence, the same empirical points of reference.

The discernment of practically salient features of a situation is predicted, as the previous description makes clear, on a process of professional perception or vision. This is similar to, but different from, Goodwin's (1994) well-known work on professional vision. Goodwin stressed the selection from features of a situation that are distinctive or are embedded in what matters about the situation at hand. He approached this, however, as an individual issue of apperception that is made intelligible to others through professionals using multimodal strategies to organise and present images, text, and conversation. In contrast, although the previous description of the mode of perception that underpinned the formation of judgement also stresses the selection of what matters about a situation, the description differs from Goodwin's approach because it assumes that the reasons that inform an individual act of judgment can be shared in a way that others' can appreciate and/or contest and, as a consequence, infer collectively how to use other professionals' insights as a resource to accomplish the task-in-hand (Guile, in press).

Redding's (2007) discussion of McDowell's ideas about the relation between the space of reasons and practical judgement provides an insightful description of the link between perception, understanding, and action.

The explainer must grasp the situation in concepts that are part of the agent's own repertoire, otherwise it wouldn't give *their* reasons for acting, and, it would seem, that they must be concepts that are part of the explainer's own practical repertoire, otherwise they wouldn't give *reasons* for acting. (Redding, 2007, p. 149)

Translated in relation to the case study described in this article, these insights about the role of reason in practical situations help us to understand how David was able to convince the other members of the team that the problem he had identified with the design of T-House had to be addressed. David couched his explanation of the problem in terms that Ranbir and Melvyn could grasp because they all shared a common repertoire of concepts, and Ranbir and Melvyn were able to use this common conceptual framework alongside their professional experience to infer what followed from David's observations. At that point, David, Ranbir, and Melvyn were therefore operating in a common space of reasons, and engaging in the social practice of giving and asking for reasons in relation to the proposed suggestions to stabilise T-House. Colin was, however, excluded from this common basis of understanding and, as such, struggled to infer what followed from David's observations.

The turning point in the discussion of the deficiencies in the design of T-House occurred as Ranbir recontextualised the technical problem in relation to Colin's and his shared aesthetic aspirations for T-House. By drawing on their repertoire of concepts, Ranbir offered Colin a point of contact with the space of reasons which, at that point, was shared only by David, Melvyn, and Ranbir. The net effect was that Colin was gradually able to act in relation to an extended shared perspective, rather than feel that he was being forced into redesigning T-House because David had successfully convinced other members of the team to accept his point of view. Taken in combination, the process of restructuring, repositioning, and recontextualising allowed the team to agree what they all felt was the best course of action in relation to the problem. Stated another way, the team created what Edwards (in press) referred to as the "common knowledge" required to accomplish interprofessional "boundary work."

The final issue is that the previous discussion of the role of reasons and judgement in inter-professional working and learning sheds new light on the concept of action. This article has



demonstrated that interprofessional working consists of a mix of analysis and dialectical contestations of opposing opinions that generate an epistemically and practically tinged outcome. This happens because, on one hand, the analytical approach adopted is informed by the commingling of the concepts and methods associated with different professions in relation to the task at hand—in the case just described, the concepts and methods of relational aesthetics and structural engineering—and, on the other hand, the dialectical contestation is characterised by a concern amongst members of interprofessional teams for what is currently known by the team and what is potentially knowable to the team. This article has also shown that interprofessional learning is establishing, what Redding (2007) referred to as “a shareable conceptually articulated perspective” (p. 151). In other words, the way in which individual professionals form and explain their judgements in a way that can be made intelligible to professionals in other fields. In doing so, a professional is not providing those professionals with an equivalent level of understanding; rather, she or he is making explicit the reasoning that lies behind their suggestions. This provides a foundation for professionals in another field to infer what follows *for* their current level of understanding about an issue, and what might follow *from* this emerging shared perspective as regards the course of action that they should take.

Taking both insights together, the article implies that interprofessional action to address problems occurs as members of project teams (a) use reasons to form and share judgements based on shareable, conceptually articulated perspectives (space of reasons) and (b) develop the collective capability to restructure their disciplinary-specific perceptions and use that process of restructuring to both reposition themselves in relation to the object of their activity and recontextualise others’ judgements to agree collectively how to act. In drawing the aforementioned conclusions, it is important to acknowledge that further conceptual and empirical work will have to be undertaken to work through the implications of the argument that has been presented.

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