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A Case Study of the NetWorkPlace™©:

Architectural Design Research Through Partnership and Collaboration

PAUL SMITH

School of Design and Built Environment, Queensland University of Technology, Brisbane, Australia.

Partnerships and Collaborations

workplace design, inter-organisational network, inter-disciplinary, collaboration, partnership, NetWorkPlace™©

A new paradigm of work has been presented to us by the technical revolution and the shift in focus from a service to a knowledge based economy. The architectural profession must seek ways to respond to the challenge of this new context. This paper explores a way to inform the design process for workplace environments in a contemporary business setting, characterised by an inter-organisational network of cooperating companies. The research to be discussed represents a case of the increasing proportion of architectural practice dealing with unfamiliar contexts and posits that no single disciplinary approach to either research or practice in this area of workplace design can suffice. The NetWorkPlace™© study is a work in progress, exploring the experience of being-at-work from the perspective of linked communities of interest in order to inform the workplace design process. Collaboration with a host project provides the basis for investigating the factors that are shaping and
defining interactions within and across networked organisational settings. A
discussion of the inter-disciplinary approach, undertaken in partnership between
research and practice, indicates the potential for expanding the range and
richness of understanding applicable to design in this context. The host project
was established as a partnership initiative between industry and academic
representatives. It encompasses three mature industry sectors and consists of
three participating commercial organizations, involving industry practitioners
and five researchers from four Australian universities. An overall model
encompassing the diverse disciplinary fields has been developed, enabling the
research activities to be focused, the inter- and intra-organisational processes
to be accurately identified, and the investigative boundaries firmly established.
The model ensures academic robustness and consistency across disciplines in
its research application, and the collaborative, partnership approach highlights
the relationship between practice and research.
WORKPLACE DESIGN IN A NEW CONTEXT

The dynamic world of competition, the pressure for companies to be innovative, the realignment of corporate activities, and the re-invention of business now dominate organisational life. The global economy is characterised by an almost instantaneous flow and exchange of information and capital. The trend towards inter-organisational collaboration has provided new directions and commercial opportunities in the quest for companies to achieve competitive advantage. Within this context a new form of inter-organisational cooperation and management hierarchy has emerged and been manifested as the network enterprise. In this sense, networks have taken on a totally new significance, coordinating organisational decision making through decentralised horizontal communication systems. Based on this mode of operation, what is important today for workplace designers is not just the independent corporations themselves, but that corporations are organised together through networks or alliances. This is changing the ways that businesses operate and the ways that employees interact. Due to the inter-organisational context, physical boundaries have been extended by the spatial expanses of the network community to create an additional expression of social organisation in workplaces. This replaces traditional constructs of the office or work environment, resulting in a reshaping of the intellectual and professional challenge for architects involved with the design of contemporary organisational settings. The workplace, and consequently workplace designers must respond to the challenge presented by this new network context. Castells claims that “the space of flows is a new form of space, characteristic of the information age, but it is not place-less, it links places by telecommunicated computer networks ….. It redefines distance but does not cancel geography”. Network structures have created a new notion of space which architects and interior designers need to consider. This duality, the space of place and the space of flows, requires new interpretations of place and the meanings these places take on depend on the interactions within the various networks. “From an architect’s viewpoint, electronically mediated places are not uniform, dimensionless nodes, as they rather misleadingly appear on the abstract network diagrams made by telecommunications engineers”. They each have particular physical contexts, they are inhabited and used by people who have their own local customs and cultures. The biggest paradox of the electronic communication revolution is that by enabling people to work almost anywhere, it has
made a sense-of-place more important than ever. The outcome is that as long as people matter, place will too.

Hartman’s research highlighted that an organisation’s physical environment is an often overlooked and under-utilised intangible asset. Buildings both set limits and offer opportunities for various behaviors to occur. Nevertheless, the pattern of relationships between workers and the characteristics of work settings is still not well understood. Fundamental beliefs about the way work is structured, including where and when it is done, are in the process of becoming irrelevant. Pugsley and Haynes have reported the need to undertake detailed studies of individual workgroups within an organisation to thoroughly understand their working methods and their requirements for different workplace settings as an essential part of the design process. The transition to a knowledge-based economy has resulted in the emergence of fundamentally different types of organisations. The approach to office design must be adapted to the way organisations are being transformed, towards the creation of interactive, strategic management environments that support cooperative, dynamic business performance.

THE INVESTIGATIVE APPROACH

The leading edge of workplace design research and practice must be driven by demand from the commercial world, that is itself in the midst of rapid change. Within a network of cooperating organisations it is impossible to understand one aspect or component such as the physical workplace environment, without considering the other influences or dependencies involved. This highlights the fact that “an ever-increasing proportion of architectural practice involves unfamiliar circumstances beyond the experience of individual practitioners, and beyond the conventional wisdom of the profession as a whole.” Further to this, a growing number of scholars argue that the dominance of a single perspective results in an exclusive or partial view that does not fully reflect the multi-faceted nature of social, organisational, and phenomenological reality. The NetWorkPlace study posits that a single disciplinary approach to either research or practice in this area of workplace design cannot suffice and suggests that an interdisciplinary pluralist approach is required. It follows, that the production of knowledge via research to underpin design practice in this context, must be linked to related research into contemporary organisations. The key feature of such an inter-
disciplinary model is that research and practice need to be integrated and context specific.\textsuperscript{19} \textsuperscript{20}

The NetWorkPlace\textsuperscript{TM©} study suggests that an appropriate starting point for designers is a need to understand the nature of relationships associated with both the social and technical interactional processes and to understand the concept of relative dependency and mutual benefit within such a strategic alignment framework. The research thus looks to the people and their experience of being-at-work in a networked context for a deeper understanding in order to inform the workplace design process. What is being proposed involves both the process and purpose of architecture.\textsuperscript{21} It is suggested that the first step is to get architects and non-architects to work together.\textsuperscript{22} \textsuperscript{23} This does not simply imply the participation of users in the design process, nor collaboration solely among designers and other professionals. It is a means through which designers and non-designers participate as partners in the design process, shaping not only the outcomes but also the aims of designing. It involves the process of people’s experience, not physical objects alone, as the motive in design activity.\textsuperscript{24} Groat proposed that the role of the designer is best understood by considering the architect-as-cultivator, inferring a shift away from the role of the architect as sole technician or artist towards a more collaborative process.\textsuperscript{25} Only through cooperation and collaboration can more than one intellect, more than one body of experience, and more than one viewpoint be applied. The job of architecture thus stated, depends upon contributions from many.

The literature available indicates that the exploration of workplace design across inter-organisational contexts has yet to be investigated. Acknowledged expert in the field of workplace design, Francis Duffy, suggests that had architecture been a more research based profession, comparative data from cumulative case studies would be available to demonstrate the effectiveness as well as the efficiency of using the design of the working environment to achieve strategic business purposes.\textsuperscript{26} The NetWorkPlace\textsuperscript{TM©} presents an opportunity to study a case of interaction within and between networked inter-organisational communities by adopting a total network ecology approach. The aim is to extract an understanding of the implications for a sense-of-place which social actors experience through the everyday activity of being-at-work when confronted with the duality of the space of place and the space of flows.\textsuperscript{27} \textsuperscript{28} This attempts to increase the level of empirical understanding in the field and to build upon strategies developed in the UK (by Francis Duffy),\textsuperscript{29} \textsuperscript{30} in the USA (by Franklin Becker and Fritz Steele),\textsuperscript{31} and in Australia (by David Week).\textsuperscript{32}
It has been argued that the ordering of space in buildings is really about the ordering of relations between people. Unwin stated that “at its fundamental level architecture does not deal in abstractions, but with life as it is lived, and its fundamental power is to identify place”. Schneekloth and Shibley claimed that the designers approach to placemaking must assume the legitimacy of every persons experience of living. At a fundamental level, designers must commit to a philosophy that engages with the human condition. Phenomenology offers such insight by asserting the primacy of the lived-world of everyday experience. Within this tradition, the interpretivist position in qualitative research focuses on subjective reality as one of understanding the way in which the individual creates, modifies or interprets the world in which they exist. This research strategy regards social scientific knowledge as being derived from the everyday concepts and meanings, from the socially constructed mutual knowledge of the members of the community under investigation.

THE CASE STUDY

The NetWorkPlace© study draws on an ethnomethodological approach which places the in-situ accomplished and socially organised character of practical action at the forefront of the research agenda. Techniques developed by theorists of the interaction order (namely Erving Goffman) and Harold Garfinkel are being utilised to inform the study. Data has been gathered from thirty interview participants representing both management and operational levels of the three subject organisations. Non-participant observation sessions have been undertaken at various workplace sites and a range of relevant organisational documents assembled for analysis.

As outlined, alliances between organisations are becoming increasingly important in the strategies through which companies and corporations attempt to secure advantages in the marketplace. Accordingly, the NetWorkPlace© study is being undertaken within a host project investigating a single supply chain function involving the cooperation of three large Australian organisations. (For the purpose of differentiation from the NetWorkPlace© study in this discussion, the host project will hereafter be referred to as SCOP, an acronym for supply chain optimisation project.) SCOP is concerned primarily with identifying and implementing improvements to the supply chain management function across the participating organisations. The concept of supply chain management is defined as the integration of key business processes that add value in the provision of products, services, and information, from suppliers
through to the end users. Of particular relevance to workplace design, perhaps the critical notion to grasp concerning supply chain management is that it has a significant human dimension due to its emphasis on communication and cooperation across all parties comprising the chain.

The inter-organisational network (supply chain) under investigation extends a distance of over 12,000 kilometres. It encompasses the casting and rolling of steel components in Whyalla, South Australia, which are then transported for assembly and storage in Brisbane, and finally installation throughout the State of Queensland. The commercial organisations involved are significant industry identities in the steel manufacturing sector and in heavy engineering infrastructure provision. The customer organisation is a government owned corporation with 12,000 employees in total, an annual revenue of $A2.4b, and an asset base of $A7b. The supplier organisation is a publicly listed company with 7,000 employees in total, an annual revenue of $A2.9b, and an asset base of $A2.6b. The third member organisation is a national rail operator with a significant presence in the Australian transport industry. The study interest focuses on the interactions between individuals and groups within specific organisational divisions responsible for enabling the necessary inter-organisational processes. The SCOP research is being conducted over a two year period by an inter-disciplinary team comprising industry practitioners from the participating corporations and academic researchers representing four different universities.

Within the inter-disciplinary collaborative research environment provided by SCOP, inclusion of the NetWorkPlace™© study acknowledges the physical workplace as an essential mechanism to both directly support and sustain the supply chains social networks and technical infrastructure. The role of the architectural component is to establish a process to identify how the design of workplace environments can help enable inter-organisational interaction and subsequently the supply chain processes, across the different settings within the networked business context. The NetWorkPlace™© study thus seeks to develop a way of interrogation and understanding which can be utilised to inform the workplace design process. Being embedded in an inter-disciplinary approach provides the opportunity to draw upon multiple views and to triangulate on a set of facts from several explanatory positions to allow new understandings relevant to designers and the design process to emerge. SCOP seeks to overcome the biases identified in much of the supply chain management research, undertaken predominantly from a positivist, quantitative, single-disciplinary, operational orientation, by exploring this case from a holistic perspective.
utilizing qualitative, interpretivist methodology and an inter-disciplinary approach.\textsuperscript{47, 48, 49} This is compatible with the research strategy and methodology adopted in the NetWorkPlace\textsuperscript{TM©} study.

THE MODEL

The key areas of research were defined following an initial exploration of the network using the Supply Chain Councils proprietary operations reference software tool (SCOR).\textsuperscript{51, 52} The inter-disciplinary streams which now constitute the major project research effort are focused on exploring in a networked context, the supply chain processes, corporate governance, information systems and technology, social networks, and physical workplace environments. An inter-disciplinary model (Fig. 1) has been developed as part of the NetWorkPlace\textsuperscript{TM©} study to coordinate the research activities of the SCOP team.
This has enabled the project to be accurately scoped and the precise research boundaries established by defining the network entity’s processes, supporting mechanisms, and interdependencies. The logic of the models formulation is based on the process and disciplinary interdependencies relative to this particular case. Application of the SCOR software provides common terminology and standard process descriptions so the supply chain can be described unambiguously and communicated consistently across the network. Corporate governance determines the structural and contractual relationships that individual firms enter into, and the policies implemented, which in turn influences the type and amount of information which is officially permitted to be disclosed or shared with allied organisations. The information systems and technology component focuses on what and how information is shared (both formally and informally), what technologies are utilised and to what extent they are compatible. The social network component centres on individual and group interaction in order to elicit an understanding of the implications for communication and cooperation within and across the organisational boundaries. The physical workplace is being explored in terms of its ability to symbolically reflect organisational structure and culture, to enable supply chain processes and to facilitate social network relations. To ensure that a robust inter-disciplinary research process can be guaranteed, the investigation is situated within an existing theoretical framework, achieved by combining socio-technical systems (STS) and inter-organisational network (ION) theory.

The investigative model assumes that the research approach will yield insights unique to each of the disciplines involved together with issues common to each. By combining the individual and collaborative phases (Fig 2) of the data analysis, the aim is to further inform each of the disciplines and ultimately achieve common understandings and consensus regarding the implementation of interventions into the actual supply chain.
INSIGHTS FROM THE COLLABORATIVE, PARTNERSHIP EXPERIENCE

The NetWorkPlace\textsuperscript{TM} study is yielding insights which relate to how the physical environment addresses issues of power, control, status, trust, privacy, autonomy, and interaction as the most significant areas of concern within the network. Preliminary analysis only has been completed at this time but indications are that the models assumptions are valid. The point of interest considered most relevant to this discussion relates to the process of interrogation. The case specific outcomes will become critical for later validation or refinement of the approach adopted, measured by the level of contribution that the workplace component is able to make towards the overall supply chain innovations. What is currently emerging from the different disciplinary perspectives continues to drive the research interaction. From this is built a shared reality which is a pre-requisite for decision making in the overall research process. An important lesson has been that to support collaborative research, comprehensive systems and processes must be implemented to integrate the activities and coordinate the various components. A necessary condition has also been the development and maintenance of good relations between all stakeholders.
This case illustrates that inter-disciplinary collaboration and the partnership between practitioners and academics is not just another way of organising and conducting research. What needs to underpin the specifics of the particular project however is a coherent view of practice, of research, and the relationship between the two. This project is based on a shared commitment between the organisations involved, the individual practitioners, and the researchers, to build new knowledge. The contributions are in this way instrumental in establishing and maintaining a dialogue between the research and practice partners which has the potential to go beyond this specific research project. Collaborative research in such a partnership arrangement between academics and industry practitioners builds an awareness that researchers are actively contributing to improved professional practices. This in turn can only progress the reputation of academic relevance within industry and is likely to make future collaborations easier to establish.

CONCLUSION

This paper has outlined the emergence of network entities and signalled a need for workplace designers in this context to expand their methods of inquiry. The discussion is intended to serve as a working example for those having the opportunity, the motivation, the energy, and importantly the support to engage in inter-disciplinary, collaborative research despite the difficulties and demands in creating and managing such group efforts. The experience of this study to date suggests that an engagement with such a collaborative research partnership in respect to both project establishment and research implementation, is just as much concerned with relationship building as it is about funding issues. The collaborative partnership described in this paper evolved from and developed through complementary research needs identified independently in the early stages of both the NetWorkPlace™ and SCOP studies. This case represents an invitation for architects both in practice and academic institutions to re-assess the opportunities available to them and the methods employed for securing and undertaking research. For the sake of the profession, we need to be as creative about the process of initiating and designing research projects as we are creative about the process of designing buildings.


