REAL MATERIAL ETHEREAL

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Making Design Research Happen: Experiences of a Practice-Based Researcher

Abstract

Not many people do what I do. I am a full-time researcher in a large design practice. Most design research is undertaken part-time by practitioners between projects, or by academics with (or sometimes without) links into practice. My privilege brings a responsibility to further the cause for research in practice. Designers understand the benefits of research, but very few are able to deliver it on an ongoing and consistent basis. Time and money are the major barriers, amongst many others. With a little patience and creativity, sometimes these hurdles can be overcome. This paper explores the benefits and challenges of a range of research models HASSELL has used over recent years, and how we have disseminated the findings to relevant and receptive audiences.

Introduction

This paper seeks not to demystify or define the term "design research". It is a complex and nuanced area of expertise that I leave others more qualified to explain.[1,2] Rather, it explores examples of one particular type of design research emerging from the shadows: research undertaken within large commercial architecture practices that contributes directly to project outcomes *as well as other business objectives*, including staff education, marketing, and broader industry development.

In 2013, an international study by Evidence Based Design (EBD) Journal uncovered how architects value research – while 80 per cent of respondents perceived a need for evidence in the design process, only 16 per cent reviewed research as part of their normal practice. Only five per cent of design firms undertook post-occupancy evaluation as a matter of course.[3] This indicated a remarkable gap between aspiration and reality that has likely not changed significantly in the years since.

The 80-16 problem is mostly a product of time and cost, although there are other factors, including client and designer liabilities, site and client access, and project timing.[4] Project teams are under pressure to deliver more for less, and research is often first in line when cost-cutting starts. Clients struggle to see the value of post occupancy evaluations of unique buildings – what use is that to them next time, if there is a next time? But evidence of occupant behaviour and building performance can help clients to reconfigure space to make

it work harder for them, or to inform their next building commission. And strategic research during the early stages of a project can help organisations to understand their work culture and company objectives in order to direct resources to where they are most effective.

Quite apart from the benefits for clients, research has the potential to provide designers with tools for advocacy, client engagement and marketing, as well as contributing to the development of new materials and building processes. As the EBD Journal article points out, a lack of research during and after the design process betrays an arrogance that designers and the broader community can ill-afford:

> "We make design decisions… on the basis of personal experience alone, and the potential truth of our assumptions is almost never tested. Importantly, we miss the opportunity to explore a world of ideas and potential experiences that are quite literally beyond us." [3]

There are many types of design research – from computational design to robotic manufacturing processes, thermal modelling to product testing, design history to design theory. Add to this the idea that all design is research, either 'for design', 'into design' or 'through design'[1] and you've got a very large body of work to read, view and experience before coming to any conclusions. All of these approaches are relevant, and require particular skills from people across practice and academia.

Many large and small practices are already undertaking research across this broad spectrum. Internationally, AMO and GXN operate as adjunct research operations at OMA and 3XN respectively, in areas as diverse as sustainability, branding, and product design. Gensler conduct research across many sectors, but in particular in workplace design, while Atelier Bow-Wow explores micro and ad-hoc housing, urban space and behaviour. In Australia, many larger practices, including HASSELL, Lyons, and Woods Bagot, and some smaller practices such as Baracco+White and Sibling, are investing in partnership models with universities as well as in-house research.

At HASSELL, designers conduct project-specific research with clients and industry partners across all of our disciplines and sectors. However, we also have a full time research team that develops research in the Education, Health and Commercial Workplace sectors. This research centres on people, place and technology - how do people behave in the places that we design, and why? The work ranges from primary research to desktop research, and sometimes we just translate academic language into business language for our clients. The findings inform our design work and our clients, and lessons drawn from research proposals

abandoned for want of funding, client support or conceptual clarity help us understand the challenges the architecture industry faces in delivering high quality evidence-based design.

The following research projects illustrate the benefits and challenges of different models from the perspective of a design practice. In some instances, academics and clients will view these pros and cons quite differently, which simply underscores the challenge of bridging the academia/industry divide.

The grand scale project: Co-operative Research Centre

Seven-year duration, with internal and external funding from the Australian Government and others.

As a relatively orthodox and long-term path to delivering research, we chose to join a Co-operative Research Centre (CRC) in 2014. The CRC represents a $100 million, seven year collaboration between over 40 Australian and international research institutions, governing agencies and industry organisations. It aims to develop new social, technological and policy tools for reducing greenhouse gas emissions in the built environment.[5] as an industry partner, we partially funded participation through our own internal Carbon Reduction Program. We contribute in-kind with data from built projects, as well as offering the expertise of staff at events and workshops relating to low carbon city planning, microclimates, cross-laminated timber and modular construction.[6]

Our designers benefit from the knowledge shared by highly regarded institutions, and from the research findings, which we can apply to new designs. The close involvement of industry partners helps the CRC to prioritise practical rather than theoretical findings. Participation in program boosts the company's reputation of a strong commitment to furthering knowledge, technologies, and processes that contribute to a sustainable construction industry. We also derive publicity from high quality research publications by the CRC.[6]

However, there are drawbacks to a large cooperative approach. The long timeframe has made research delivery slow, and limits the CRC's ability to address new, emerging issues. While industry partners can suggest areas of need, academic imperatives for the direction, resourcing and outputs of research have been challenging for us, compounded by the unwieldy institutional administrative processes at odds with private industry timelines. These large partnership programs can produce substantial and important research, but design practices should consider how best to participate to ensure meaningful and actionable findings.

The mid-scale project: The role of hospital design on staff

Two-year duration, with internal and external funding from the Australian Government.

In 2015, we collaborated with the University of Melbourne Health Systems and Workforce Unit through a Commonwealth Department of Industry grant (which we matched dollar for dollar) to determine how workplace design affects hospital staff. The grant program[5] links industry to academia in an effort to forge new relationships and drive innovation in products across all sectors in Australia. Our project explored elements of hospital design that most affect nurses through focus group discussions at hospitals in Australia and the United Kingdom. The second phase of the research, delivered through an extension of the grant, examined how design can affect staff communication in emergency departments.

The research has been published across academic, industry and mainstream channels [8,9,10] and won an international research award in 2017.[11] It has been presented in a number of fora, from hospital clients to academic conferences, and generated a number of enquiries about the company's health design capabilities.

It has been one of our most successful research projects because it combined the expertise and existing health sector relationships of academia with the design expertise of our practice, within a timeframe long enough to produce rigorous research. The grant lowered research costs to the company (the project would not have occurred without external funding) and provided research income for the university partners. Direct industry engagement was beneficial to the researchers in demonstrating to their departments potential research impact. Shared intellectual property enabled the academic authors to deliver peer reviewed publications while we tailored the material to industry specific publications for our clients. The findings also strengthened our cross-sectoral expertise (Commercial Workplace and Healthcare) and showcased the company internationally. This was a highly successful model for delivery research with high visibility and potential design influence.

The small-scale project: Design review of informal learning spaces at universities

One-year duration, with internal funding.

This self-funded comparative study aimed to fill a knowledge gap for our higher education clients about informal learning spaces. Despite a worldwide building boom in this type of space on campuses, very little empirical data exists about how these are used. This research

project compared eight new informal learning spaces in Australia, the United Kingdom and Singapore through student surveys and observational studies.

The twelve-month timeline for this project enabled us to capitalise on the immediacy of the findings and apply them to current projects. The research allowed higher education clients to see how other universities are delivering informal learning spaces, and to understand regional variations in student study habits and opinions. It has also enhanced the visibility of international work that we deliver.

The scope of the project was limited due to funding constraints. The material from this project has been useful to the company for marketing purposes and insights for design projects that are currently underway. The findings have been quoted in mainstream newspaper articles,[12] and presented at Australia's premier higher education facilities conference, TEMC. Sharing the research publically has opened doors to new clients and enhanced our knowledge about a new typology of campus space.

The short sharp Project: Community perceptions of a redeveloping health precinct
Four-month duration, with external funding from the client.

The company undertook a client-funded study as a part of the master planning process for a new health precinct in Australia. It encompassed a range of research methods including observations, a public survey, and stakeholder focus groups, to observe and ask the workforce and surrounding community about the current precinct, and their aspirations for a better environment, beyond the pragmatic health services requirements.

Through the client, we were able to access contacts from across the precinct (residents and workers), enabling excellent survey distribution to, and responses from, the community. Client funding enabled us to supplement our research expertise with an external consultant with local knowledge to run focus groups. The research informed the client of a number of general themes and specific issues that were valuable in the master planning process. However, because of community sensitivities and the client funding of the project, we are unable to use the research for business purposes or marketing beyond very general references.

The policy development project: Peak body guidelines
Three-month duration, with external funding from a peak body.

In 2018, the Australian Institute of Architects (The Institute) commissioned us to research the current procurement methods of public sector clients and the perceptions and experiences of clients and architects, with a view to developing best practice guidelines.

A review of industry peak body and government department policies clearly indicated the problems of procurement processes are widespread and similar in nature across all types of projects. Analysis of these, combined with a survey of Institute members and interviews with representatives from various government departments revealed common issues. After the research process, we assisted the taskforce in the development of procurement guidelines. The Institute will use these as an advocacy tool for both individual architects (to advise clients) and themselves (to lobby government). The Institute is also now conducting a similar investigation into architects' perceptions of novation practices in the construction industry.

A dedicated budget for research from a taskforce with clearly defined objectives enabled the project to be short, sharp and effective. The modest budget limited the scope of the project, with only a small number of client side representatives interviewed. All involved acknowledged the need for further research to delve deeper into the issues raised, but considered the project an excellent first step.

What have we learned?

The benefits of design research are almost as hard to quantify as the benefits of design. It is not difficult to find clients who understand that data driven decisions will deliver better design, but agreeing on a price for that, and a clear path from that data to design decisions is notoriously so. Some practices build research into their costs, and deliver it when there are resources available. Others employ researchers (full or part time) to deliver both funded and unfunded research on an ongoing basis. Both approaches are valid, workable, and worthwhile. The smoothest path to a successful research project involves identifying the funding priorities, and matching those to realistic expectations and deliverables. Will the research inform the client, or the practice, or both? Will the findings be shared or kept confidential, and what are the financial, marketing, reputational and competitive implications of that decision?

Design research funded by external parties (clients, peak bodies, government grants) can be conducted quickly and with more certainty about timing, outputs and resourcing. Paid research is also less likely to be interrupted when a practice becomes busy. However, client-funded research can limit intellectual property rights for the researcher, due to business confidentiality issues, making it is less useful to practices for broader marketing and client engagement

purposes. While the costs of research may be recovered, there may be no additional benefit to the practice.

Design research for advocacy and policy development (funded by peak bodies or practices) is an important contribution to the architecture industry, and highly valued by practitioners and clients alike. Large practices can contribute most readily to this type of research (due to economies of scale and breadth of experience) and can reap reputational benefits from involvement in research that contributes to community conversations pertinent to both the design process and the built environment.

Design research with academic partners can open doors to funding opportunities and specialised expertise, but slows down the process due to the length of research development, funding and ethics approvals, and other work commitments of academics. However, it does help design practices deliver robust research that can be peer reviewed and published in journals. While journal readership is not necessarily relevant to a business, the prospect of published research can make the project more attractive to a potential academic partner. Theoretical approaches to research questions can distract from the business imperative of practical application.

Design research funded internally by a design practice allows full autonomy in the direction of the research, the outputs, marketing and application of the research findings, which is useful in targeting specific client groups or market sectors. It also speeds up the delivery of findings, and can allow exploratory, high-risk research that is relevant to a particular design objective. We regularly use our research to begin conversations with existing and potential new clients about issues that directly affect them. These research events and presentations help to build a reputation of insight driven design, as well as contributing to a body of research for the design industry more broadly.

Funding design research is difficult. Designers can produce ideas and buildings without research, but we are all the poorer for it, so it is in the best interests of practitioners, academia and clients to prioritise research as a means to more efficient, productive, and beautiful design.

Endnotes

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