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LearnxDesign

The 3rd International Conference for Design Education Researchers

Hidden Value

- Towards an understanding of the full value and impact of engaging students in user-led research and innovation projects between Universities and Companies

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Abstract: *'Live' projects have been the staple of degree programmes in design for as long as design education has existed. They represent the perfect vehicle through which students can test their evolving knowledge and skills. They provide an ideal constructivist platform through which problem-centred, authentic learning can be achieved and deliver immediate value to student learning. This study explores the value to the other stakeholders in such projects: the Company and the University.*

A suite of projects undertaken over a ten-year period between a leading Design School and one of the largest Fast Moving Consumer Goods companies in the world has been reviewed. Semi-structured interviews with Company employees and academics have been used to establish the impact of each project, and this data has been mapped against the original objective of each project in order to identify the hidden value of these collaborations.

Through this exploration of a decade of University-Company collaborations, the authors identify levels of engagement that go beyond the 'live project'. The paper illustrates the value of such projects for the 'client' organisation, and the academic community, as well as reflecting, briefly, on the student experience.

Keywords: *Live-Project, Industry-collaboration, Innovation, Impact*

Background

The site of this research, Northumbria University School of Design (hereafter NUSD), has an international reputation for the excellence of its teaching of industrial design practice at undergraduate and postgraduate levels. It is also an acknowledged pioneer of multidisciplinary practice learning within design, and, between design, business, technology, and social sciences subjects. A characteristic of NUSD is the essential role that projects (conducted between external partners, academics, and students) play in the curriculum.

NUSD plays host to the students with the highest academic points-score in their University and the brightest design students in their country. The academic team comes from different facets of design dealing with both theory and practice-based design research. In addition to the academic team, the School of Design involves 'Innovators in Residence'; recent Masters Graduates who support the projects whilst being mentored by the University as they launch their own businesses.

Projects undertaken between student groups and external organisations are often referred to as 'live' projects. This study makes a distinction between 'live', 'collaborative' and 'partnership' projects. A 'live' project as defined by the LiveProjectsNetwork; comprises the negotiation of a brief, timescale, budget, and product between an educational organisation, and an external collaborator for their mutual benefit. The project must be structured to ensure that students gain learning that is relevant to their educational development (Anderson, J., & Priest, C., 2015).

The live project is, in effect, an outcome-focused transactional project.

Introduction

This paper explores the ten years of University-industry collaboration between NUSD and Unilever. The nature of the collaboration started with live, outcome-based projects focusing on learning for both the Company and the University's students. This relationship has ultimately transformed into a partnership where both parties still learn from creating outcomes, but learn more about the cultures, methods and approaches that prevail within each organisation and the disciplines involved in them.

Pertuzé, et al. (2010, pp. 83) state that, "Most previous studies of industry-University collaboration [partnership] have framed the analysis of such partnerships in terms of research project outcomes, defined here as a result that creates an opportunity for a company, such as guidance for the direction of technology development. From a business standpoint, however, research outcome is of only incidental importance. What matters is not the outcome but impact – how the new knowledge derived from a collaboration with a University can contribute to a company's performance."

As the collaborations between Unilever and NUSD strengthened over time, the relationship has transformed into a partnership where both enjoy a number of impactful benefits. The paper identifies the nature of project relationships and the benefit of these to both parties; the Company and the University.

Relationship history

A chance meeting, a decade ago, brought together the School of Design and Unilever. A senior research chemist interested in the relationship between detergent and fabrics had engaged in projects with Fashion Design programmes and was also working with a design agency that employed an alumnus of NUSD. The alumnus introduced the chemist to the School of Design.

At that time, most of the School of Design in question (and indeed industrial design education as a whole) was very much focused upon the traditional role of the Designer as creative problem-solver and crafter of artefact. In this context, a telephone call from a chemist curious to find out whether industrial design students had anything interesting to say about 'the nature and behaviour of fluids' might have met with a lack of positivity. However, the creative potential in this enquiry, and the

opportunity that it presented to move students out of their comfort-zones was recognised and a live project was duly established. This was in 2005.

The student outcomes of this project were truly surprising; the students were guided to think beyond product design, and to consider what might happen if fluids (in the context of the Company's products) were unconstrained by packaging. They were asked whether scientists could design the behavior of fluids within certain consumer contexts. What resulted was a series of designed narratives; user-stories from the consumers' perspective that highlighted the role that designerly ways of thinking and communicating (Saikaly, 2005; Yee, 2009) can play in informing scientific enquiry upstream in scientific discovery. The project outcomes took a shortcut from laboratory to supermarket shelf, and caused the client to consider how they might engage a wider Company audience in this type of thinking and way of working.

This first project was very much in the transactional model of the live project with a sole industry contact that had an interesting question of minimal commercial value. In this case, however, its value can't be overstated for it paved the way for 23 subsequent projects (and counting) undertaken over a ten-year period that have enabled the relationship to grow to that of a partnership.

Research Methodology

As the projects have been conducted over a ten-year period, there have been a number of different actors involved from both the University and Company. However, there is a small number of key NUSD staff that have been involved in all of these projects, and these staff were consulted from the outset. Workshops were conducted in which they created a timeline for the projects onto which they mapped key information (Figure 1). This timeline and mapping was conducted at a large scale and on the wall; externalizing the information, and sharing it in this way prompted the recollection of data, and supported the synthesis of data at a later stage (Saldana, 2009). It allowed for recollection over time and for multiple actors to become involved.



Figure 1 Relationship timeline and project mapping

Evidence and Interviews

Interviews were conducted with key Unilever staff who had been involved with projects over the ten years. They highlighted the value of engaging with students. For example, the Director, Homecare Discover Team, Unilever stated, *"It's a way of breaking out of the box of kind of a traditional thinking that we do in Unilever"*; the R&D Programme Director, Unilever added, *"What Northumbria brings to the table is not one-to-one relationship but one-to-many"*, also indicating that Unilever has learnt new ways of looking at their problems. Unilever's 'smart futures leader' saw clear advantage in collaborating with Northumbria students and she added, *"It was clear that we were working with partners that were [going to] help us really generate something completely different, but at the same time make sure that it was grounded with our consumers and aligned to the brand that we work with."*

She further confirmed that engaging with Northumbria led Unilever to understand the real value of 'compelling communication' by stating, *"we were able to come up with an output to the project, which was completely different from what we would have got from an internal team [doing] it. We have been able to gather a set of videos as the output, aligned to our consumers, for each of the ideas that we came up with. I think the videos that we have produced were absolutely key in getting*

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stakeholder buy-in for at least one or possibly two projects that we are now doing, which simply would not have happened if we would not have done that piece of work.”

Finally, Unilever’s ‘Project Team Leader’ provided evidence towards the collaborative projects delivering real business value to Unilever by stating, “The real value that we have got out of working with Northumbria is two folds; firstly, we have got a very different way of thinking about some of our products and some of our problems, and some new populations, and secondly, we have got a way of understanding how we can turn that into a business proposition”. Additionally, Laundry Liquids Designer at Unilever, said, “The ideas that we create are sensible ideas with a business context, are creative and enable us as an organisation to file and protect the IP in the territory, or bring those ideas to market.”

Academic staff, reflecting on the students’ perspective, and interviews with students themselves highlighted that these sort of partnerships provided the opportunity for the students to practice their new found design skills in these new contexts with real professionals. Additionally, staff also confirmed that such partnerships helped in making their students employable in industry.

Several students’ interviews highlighted value in this collaboration as well. For example, a MA Student stated that, “I definitely felt from this project that I progressed in terms of being able to work with a live client.” An undergraduate student on Northumbria’s Design for Industry course confirmed that regular feedback from industry clients was great to build his confidence. Further, a MA student, MDI) stated that partnership projects helped her understanding the needs of the client and through constant feedback she was able progress in her design capabilities.

Data Analysis

Whilst the very earliest live projects were not subject to any formalized post-project review, from the third year of the relationship onwards, University staff have systematically gathered feedback from the Company representatives involved in the projects. Such data has informed a number of studies, including doctoral research. The Company perspective from the interviews was thus represented in the mapping exercise, and has subsequently been corroborated by semi-structured interviews with the primary contacts (including reflection on the earliest projects with the lead contact from that period). Seven criteria were used in order to map the projects (Table 1). In the mapping exercise the criteria were colour-coded in order to ease evaluation.

Table 1 Mapping Criteria

Criterion	Evidence
What we did	Summary of the brief and objectives
How we did it	Methodologies employed
Who we did it with	Key contacts, their role and position within the Company
Impact to Company	What changed in the Company as a result of the project
Impact to University	What changed for the University as a result of the project
What we learned	New knowledge or approach (es) resulting from the project
Financial Value	Sponsorship income resulting from the project

The criteria of particular interest in this paper are ‘Impact to Company’ and ‘Impact to University’. However, it is worth noting that University staff involved in the workshops and mapping became somewhat confused between ‘Impact to University’ and ‘What we (as an academic community) Learned’. It is clear that gaining new content knowledge; specific to the topic under consideration, the sector, Company etc. or disciplinary knowledge; involving new methods or approaches to practice both create an impact for the University (and its students). With hindsight, the study may have benefitted from de-coupling learning from impact when posing the question to the Company in order to gain a more detailed understanding. However, as the criteria merely acted

as prompts to aid reflection in the mapping and evaluation exercises, this omission is not considered material to the overall validity of the findings.

Despite focusing on the three criteria indicated above, 'What we did' sheds some light on where the University has impact in the Company. This criteria, then, has also influenced these findings.

Project Engagement

The typical student engagement in a project took the form of a team-based learning project, generally of 6-8 weeks in duration. Undergraduate students would be assessed on the team outcome of the project; how good the design was, whereas Masters students would be assessed on their reflection on what they had learned from undertaking the project. In all cases, the Company's business context framed the problem space for the students, and each team was invited to work with this to create their own brief for the project. Outcomes from the projects have included designs for: new business models; brands; development strategies; product and formulation designs; advertising; and communication materials.

Key Findings

Four types of projects

Reviewing 'What we did' enabled the authors to identify that there have been four broad categories of project conducted with the Company during the ten-year period;

1. Framing & Exploring

Projects in this category were essentially about understanding the true underlying problem in the territory that interested Unilever, then framing this in a way that (re)defined the explicit nature of the problem, engaged the Company with their commercial language and context, and directed the academic/student teams in the project. This laid the foundations for disrupting the territories by challenging basic assumptions through the lens of different disciplines.

2. Communicating Science

These projects were concerned with bringing science to life; translating early scientific discovery into meaningful, tangible, consumer-relevant communications. The audiences for such communications were internal to the Company (e.g. the outputs were intended to allow R+D teams to gain advocacy for new science programmes from Marketing colleagues or to provide collateral for consumer testing etc.), and Business-to-Business (e.g. in support of engaging external agencies or commercial collaborative partnerships)

3. Changing Consumer Behavior

In this category, the Company was interested in how a given market or category might be transformed through consumer behavior-change supported (or driven) by relevant product, system, service or business-model development.

4. Market Strategy

Projects in this category sought to identify strategic opportunities to load the Company's Innovation Funnel based on project content from the above three areas. This was to deliver a macro context to project work, which aligned with the Company's top-level strategic direction.



Figure 2 Distribution of project category over time

Figure 2 identifies how the various project categories are distributed over time with a consistent spread of Framing and Exploring projects evident across the timescale. Communicating Science has featured consistently from three years in (this corresponds with the University’s development of its Multidisciplinary Innovation Masters programme), and latterly Changing Consumer Behavior and Market Strategy have started to feature. The volume of project activity has also increased substantially in recent years and a number of projects have involved work in more than one category.

From Live Project to Partnership, via Collaboration

By reviewing a ten-year relationship between NUSD and Unilever, the authors have been able to identify the changing nature of that relationship. From merely conducting a small number of ‘framing and exploring’ projects, to engaging in a partnership with a combination of the four aforementioned project types caused the relationship to progress. This long term history with working and learning together led to an increased understanding of the different levels of engagements the key stakeholders could have, and the benefit these engagements could bring to both. As a consequence of this, the reach of the University within the Company has extended and the role of the projects is moving more towards the strategic.

Historically, Unilever and the School of Design have worked together in three specific ways that can be described as Live Projects, Collaborative Projects and, more recently, Partnership Projects.

LIVE PROJECTS

Anderson and Priests (2015) definition of Live Projects reflects the transactional nature of the relationship. What has been observed within the School of Design is that, whilst students gain from the experience, ‘mutual benefit’ is limited in reach for companies and University. The emphasis is, rightly in one respect, on student learning. The use of the word ‘live’ implies that the project brief is commercially significant, and presently of concern to the organisation. Our study found that this is rarely the case when the transaction is as described in their definition. The project outcomes in these cases reflect only a small amount of the academics’ research knowledge other than as it applies to any teaching associated with the project. In other words, the client company typically gains inspirational raw ideas, but little of commercial relevance.

COLLABORATIVE PROJECTS

‘Collaborative Projects’, on the other hand, go beyond the simple transaction of agreeing ‘brief, timescale, budget and product’, and place emphasis on mutual commitment as well as mutual benefit. They are undertaken as more of a joint venture with the external party(ies). This ensures a

greater partner input to the project (beyond the budget and brief), and consequently greater academic contact and thereby opportunities for deeper sharing of knowledge. Inevitably, this increased sharing delivers greater benefit to all stakeholders; the company employees witness alternative ways of thinking about their world and different ways of working, and academics are able to measure the currency of their knowledge in real-world commercial contexts.

PARTNERSHIP PROJECTS

Ultimately, a Partnership Project offers the greatest opportunity to deliver truly mutual benefit, and goes beyond the benefits of mere collaboration in that the partners become so aware of each other’s needs, culture and direction of travel that they can become pro-active in the relationship. Close alignment of the goals, culture, and ethos of the University and company leads to increased impact of any project undertaken involving the students.

Pertuzé, et al. (2010) suggest that in such a project scenario the real impact of the partnership can be brought to life; the relationship could go beyond the finishing of the project, and lead to implementation of the learning within the company and the University for real business impact.

Discussion

This study explored the value of ten years of collaboration between NUSD and Unilever by illustrating the different types of collaborations that led to a strong partnership between the two. The paper concludes that ‘Partnership Projects’ lead to a stronger long-term relationship between the two partners, and highlights the hidden value these ten years of working together brought to the Company and the University.

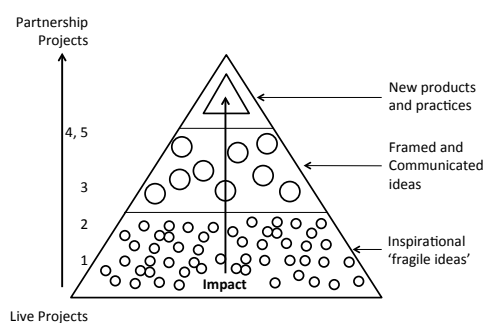


Figure 3 Hierarchy of impact

We have identified three levels of impact for the Company in respect of this relationship and these can be expressed as a hierarchical model as depicted in Figure 3. The nature of the aspects that the Company values (set out 1-5 in the next section) can be mapped onto this hierarchy, where at the bottom of this pyramid, fragile, often naïve, student generated ideas in need of nurturing can act as inspiration, and at the very top, game-changing new products and new ways of working are the prize. By moving from a live project approach, which only delivers at the bottom of the pyramid, to a partnership model, the scale of impact potential increases without losing the value of those fragile inspirational ideas. In order to be at the top of the pyramid and the outcomes to become more impactful, the University stakeholders need to be active in the project longer, beyond student

involvement. They need to deploy their knowledge, in partnership with the Company, to translate the student outputs into more Company applicable, refined solutions. Nevertheless, the research recognises the difference between *valuable benefits* and *impact* that the engagement brings to both stakeholders.

Benefits and Impact to the Company

Value to the Company through Live and Collaborative projects

In identifying valuable benefits and impact, we have considered what Unilever's representatives have told us that they valued most about engagement in these projects, and considered the 'reach' that these aspects can have within the organisation.

1. Rapidity

In relative terms, a project conducted in the hothouse environment of a student-engaged project, delivers 'tangible' results very quickly. (Tangible results in this respect are manifestations of an idea in a format that is readily understood by a specific audience. These may include mock-ups and prototypes, faux-adverts (in poster and video format), video stories, animations, poster-presentations and reports). What this means is that new scientific discovery can be postulated as consumer-ready products whilst still in early exploration. When such discoveries are placed in meaningful consumer contexts in this way, their proponents can garner advocacy for the idea, highlighting potential consumer benefit, and potential return on investment thereby aiding go/no-go decision-making.

2. High Volume, High Quality

Whilst Osborn's (1953) assertion that 'quantity breeds quality' in idea generation has been challenged (Diehl and Stoebe, 1991), there is still a very good case to make for high volume idea generation in the context of a student-engaged project with industry. For Unilever, in the context of these projects seeing their situation played back to them through the multiple lenses of many students' understanding increases the potential for them to derive value from the exercises:

- affirmation/validation of their own thinking;
- inspiration; entirely new ideas and approaches;
- unexpected connections (from sector to sector, culture to culture, life-stage to life-stage);
- and valuable 'stupid' (naïve) questions.

Proponents of Osborn's brainstorming method, and derivatives thereof, highlight the importance of quantity over quality. And supporters of live projects with students will often cite (Blumenfeld et al., 1991; Brown, 2013) the main value as being the 'creative naïvety' that students bring to a problem. This is, indeed, an important source for challenging company-held perceptions, and pre-conceptions relating to the given context. Whilst the typical student may lack experience and wisdom born out of age and life experience, this delivers a particular value to the company. By proposing positively naïve ideas, intelligently framed, and in a contextually-relevant way, their value and potential impact increases significantly.

3. Compelling Communications

Smith, et al. (2010) identified the essential role of story-making and story-telling in multidisciplinary design projects, especially those engaging scientific communities. They explain that story-making acts as mediation between different disciplines seeking to solve the same problem but employing methods, approaches, behaviors and knowledge specific to their own background. This story-making approach places the consumer at the center of the story; understanding the consumer is therefore key.

Unilever have a sophisticated model for representing different consumer types in different global situations. This guides internal decision-making and new brand strategy, product development and positioning. However, whilst the tool is sophisticated, and based on thorough research and rigorous

data, it can be somewhat 'lifeless'. Story-making (and the character creation required) brings the consumer to life, and immediately places the ideas in the consumers' context.

Smith, et al. (2010) explain how, as a project progresses, the story-making must translate into storytelling. Storytelling and its relationship to the design pitch is a relatively under-researched area, however there have been recent attempts to understand how approaching storytelling at this stage of a conceptual design project has an impact on a company in terms of their ability to see value in the work of a designer (Parkinson et al., 2012a, 2012b). In particular Parkinson and Bohemia (2012a), highlight the importance of considering the perceptions of a company when devising the structure of a story, in terms of what type of communication they perceive to be diverse and different, and what perspectives and cultural beliefs their users have.

The means of presenting such stories is also important. The mock-ups and prototypes, faux-adverts video stories, animations, poster-presentations and reports previously mentioned, can all act to bring aspects of the ideas to life, and are often combined to create presentations that are transportable; can be replayed and reused within a company by the project champions, long after the students have moved on to other things.

At the onset of projects, the School of Design has learned that investing time in interrogating the project brief, mapping the project objectives, assumptions and context against the School's own knowledge of the situation, and placing all of this in the context of the consumer has particular value. We call this 'brief-back'. This 'brief-back' ensures that both parties fully understand each other's perspective and have a shared, common goal for the project prior to student engagement. This also gives the company a compelling narrative with which to garner internal advocacy for the work and stimulus material with which to bring colleagues onboard.

Impact to Company through Partnership Projects

True impact of the engagements between Unilever and the School of Design has been witnessed only through Partnership Projects that have brought both parties to align their thinking, cultures and ethos. The most valuable impacts to the Company as identified by them are:

4. Co-creation

In Partnership Projects, a greater degree of ownership of the outcomes ensures that the project has increased potential to influence internal Company development activity once the academic community has stepped away. Engaging a broad team of Company representatives in co-creative activities as the project progresses by establishing a series of workshops throughout the project allowed the Unilever team to engage directly with the students in story-making. This inspires their own creativity and lowers inhibitions. Company employees state that working with students gives them 'permission' to behave more creatively, especially if the workshops are held in the School of Design premises. By 'permission', employees are referring to the creative freedom that working with students liberates, away from the constraints of their 'day-job' and the perceived professionalism called for when engaging with external commercial creative agencies.

This co-creation helps to establish ownership and a desire to see the ideas through into the Company Innovation Pipeline. However, it has a more profound impact; employees have explained that working with NUSD has impacted on their working practices, bringing about new ways of approaching problems, and engaging in a more consumer-focused and multidisciplinary practice.

5. Beyond students

Whilst the typical 'live' project concludes with the 'final presentation' to the 'client' and some feedback from them, research previously conducted in the School of Design (Bailey et al 2013) identified an important post-completion phase of activity, in effect, 'feed-forward' – 'what happens next...'. Building on this research, the School of Design has established a mechanism through which the academic team can work with recent graduates engaged in an Innovators in Residence scheme to work with companies to refine ideas, establish appropriate strategic propositions based upon them and communicate these appropriately. This level of engagement is important to Unilever because it

answers the question which are often posed in feedback at the conclusion of the typical live project; “that was great - now, what can we do with it?”

Benefit and Impact to the University

The overarching value to the University from this type of engagement with an organisation is that it provides a platform for truly integrated academic practice; a model in which external engagement provides both a learning context for students and research site for academics (for the application (and exchange) of existing knowledge and creation of new).

Value to the University through Live and Collaborative Projects

Barnes et al. (2002) explain that, in the context of university-company interactions, the different parties have different motivations;

any University partner aims through its research activities to achieve certain important academic objectives, e.g. the publication of research results in academic journals; to run projects for research students leading to postgraduate degree qualifications; to perform further research in specific areas; and through this research to develop new teaching and case study material.

These academic objectives are certainly present within the School of Design, however, there is another motivation at play, which possibly takes a higher priority than all of these and this is that of providing authentic learning; learning opportunities that allow for theory to be applied in practice in addressing ‘real-world’ problems.

High Level Learning Within Real World Context Bailey et al. (2014) identified context of application as essential to establishing authentic learning. With regard to these projects with this Company, it is clear that the closer the relationship moves towards the Partnership Project model, the more authentic the learning opportunity becomes.

Impact to University Through Partnership Projects

1. Generation of Currency in Practice Based Knowledge

Within the context of design innovation education, it is essential that contemporary (and future) influences on the designers’ practice are continually refreshed. Traditional academic research practices, longitudinal studies and engagement with the academic community at large, offer one dimension in this respect. However, active engagement with commercial contexts of application allows academics to understand much more rapidly the pervading priorities of the time. This ensures a currency of knowledge, which is not always achieved through theoretical study. In turn, it ensures that what is taught in the classroom and studio is entirely relevant to contemporary practice, and therefore better equips students for employment.

2. Opportunities for Future Research and Funding

Such contemporary awareness sets the scene for relevant, practice-based research. In the same way that real-world context is essential to student learning, so it is for research. It provides a testing ground for evolving theories and approaches, methods and tools. Based upon the co-creative approaches outlined above, it also provides an opportunity for such approaches to be tested with industry collaborators.

Conclusion

The University gives importance to delivery of excellence in learning and teaching, and programmes of study need to demonstrate high achievement across the range of University and HE metrics against which they are judged. The move from ‘Live Projects’ through ‘Collaborative Projects’ to conducting ‘Partnership Projects’ has proved beneficial not just for the primary partners (Unilever and Northumbria University), but also for the students. The more closely the students work with the Company (co-creating in the partnership model), the greater their experience of working in a real

world context, learning the skills and competencies which not only make them highly employable, but also confident agents of innovation and change.

The Future

As highlighted in the paper, partnership through students' projects in order to propose solutions to real world problems generates great value for the students, the company and the University. In addition to the former, such collaborations also generate value for the disciplines, and the individual stakeholders who are part of the partnership. This poses a challenge for the University; to ensure a four-way value creation i.e. for the company, the discipline, academic research and students. This has to be done by balancing the University-company relationship (business) while creating viable research output (adding value to the discipline), research opportunities (future collaborations and funding opportunities), and enhancing student experience; we call this Integrated Academic Practice.

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