

Under the Bonnet: *Exploring the mechanics of design collaborations for social impact*

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1. Introduction

Multi-disciplinary collaborative work is of major importance; because with increasing problem complexity, groups of individuals can work together in order to accomplish goals they cannot reach on their own [1]. The potential of improved outcomes from collaborating experts and non-experts offers unique opportunities for designers to engage in the resolution of complex social problems [2, 3]. Traditional methods of learning have focused on the individual. Newer perspectives of learning have begun recognising that learning is less a solitary act and more about the collaboration with others to pool knowledge, experiences, skills and tools [4]. In task oriented collective activities such as design, the question of the interplay between collaboration processes and their various outcomes is central, not the least to understand what ways of working together favour most effective designs [5]. The notion of these collaborations between designers and community partners to bring about social change is ideal in nature; the reality however, is often far from perfect. While the challenges of engaging partners; managing expectations; participant relationships; diversity of voices and perspectives; heuristics; disciplinary differences and conflicts of interests may seem like roadblocks to success they do in fact inform and teach in equal measure.

2. Paper Structure

This paper explores a number of social innovation collaborations from The Designmatters Department at Art Center College of Design [ACCD], USA, which oversees a portfolio of design projects focused on social innovation with national and international partners and the Product Design Faculty at The University of Limerick [UL], Ireland. Case studies presented from Designmatters include 'Open Ocean' an Ocean Exploration project with The Aquarium of the Pacific in Long Beach, California and "Teen Art Park: A Place for Artistic Expression", an environmental design project developed in partnership with a coalition of community-based organizations serving at-risk youth in Pasadena, California. Whilst the Irish case study involves a partnership with The Northside Learning Hub, an educational service provider for disadvantaged youths, to design low-fidelity recreational furniture.

3. Research Methods

Information gathered through a mix of qualitative methods, including observations, field notes, anecdotal conversations and focus groups, brings together the participant stories and builds a collective narrative of the different project experiences. By exploring the mechanics of these case studies we can see how the evolution of the collaborative process and the

meeting of goals served to both enrich and hinder the experiences. From this analysis, patterns were drawn that enable a deeper understanding of the aspects of the collaborative processes and participant behaviours that are common across cases, as well as the differences that define each unique partnership.

This paper is not offering a pathway to perfect and positive collaboration, instead it discusses the lessons we can learn from past experiences that can be taken forward to future projects.

4. The Institutions

Art Center College of Design is a global leader in art and design education with more than 80 years of experience. It has a rich culture of collaboration with external corporations and organizations. Designmatters [DM] is Art Center's social impact design department, founded in 2001. Designmatters is a DESIS Lab (belonging to the DESIS Network of Design for Social Innovation and Sustainability started by Professor Ezio Manzini) [6] and a member of the DESIS 'Informal, Formal and Collaborative' Thematic Cluster. The Designmatters Transdisciplinary Studios (TDS) team external partners with faculty and student participants from across all ACCD disciplines. TDS' are hosted within specific ACCD Departments. At the core of every Designmatters educational project collaboration is the fundamental belief that good design brings value to society- with the potential of especially transformative impact.

The University of Limerick has been a leading educational institute in the southwest of Ireland for over 40 years. Product Design + Technology was established in 2004 & marries creativity with practical problem-solving and technical knowledge to prepare designers for the future of the profession. Rich collaborations with industry and community partners locally, nationally and internationally offer students real world project experiences.

5.1 Design for Social Impact

Today, in their most essential roles, designers deal with concrete and objective results whose consequences affect us all, shaping the form, function and symbols of our world: from the visualization, ideation and planning of images, products and services, to the strategic conceptualization of systems and environments [7]. In this context, designers are being called upon as translators and synthesizers to creatively address social and systemic issues in organizations of all kinds. Social innovations-new ideas, artefacts, services and models that simultaneously meet social needs and create new collaborations that are both good for society and enhance its capacity to act [8] -are increasingly at the forefront of our consciousness. Design projects in this context look to explore and address socially significant issues. Social issues however are complex, non-linear, unpredictable and incomplete, leading to unintended problems and unforeseen outcomes [9].

Design for Social Sustainability, according to The Young Foundation[10], is *‘a process for creating sustainable, successful places that promote wellbeing, by understanding what people need from the places they live and work. Social Sustainability combines design of the physical realm with design of the social world- infrastructure to support social and cultural life, social amenities, systems for citizen engagement and space for people and places to evolve’*. Design for Social Impact in an educational context empowers students to apply their academic practices to design-based explorations of real-world issues. This type of project can introduce skills and competencies not always emphasised in more traditional projects. This can be both a positive and disruptive experience for participants and help move education from a transmissive to a more transformative approach.

5.2 Collaboration: An ideal context for learning?

Collaboration, simply put, is the integration of a collection of individuals who work together to reach a set of agreed goals [11-13]. Collaboration implies sharing of goals, resources and representations relating to the joint activity of participants. Other important aspects relate to mutual respect, trust, responsibilities and accountability within situational rules and norms [5]. Complex problems with their interconnected, dynamic and continuously changing elements need to move beyond one-dimensional conversations within disciplines [14]. Similar to environmental, social and economic impact, collaboration is most beneficial at the early stages of a design project when many of the key decisions are made [12]

Design educators have begun to realise that these complex issues require a mix of voices in their resolution and new learning models recognise the benefits of collaboration as a key experience for students. Design is inherently a social process where the best ideas and innovations are generated collectively [15]. In a context that often is at best uncertain, unsettled, and disturbed [16], real-World problem solving calls for a move beyond disciplinary expertise. Design collaboration therefore serves to facilitate the sharing of ideas, expertise, resources and responsibilities [12], as well as argumentation and a fundamentally dialectical process that can help participants approximate new insights [17]. As Volpentesta et al. [18] observe, the most creative of endeavours in industry involve a mix of disciplines offering different perspectives and experiences far richer than an individual could. The very act of navigating through the collaborative process, understanding the other ‘players’, finding mutual understanding of the problem-in other words, *“learning what the problem is, IS the problem”* [19]- collectively developing and evaluating solutions mirrors the process of solving a complex real-world problem [14]. Assumptions can be questioned and challenged allowing new innovations to emerge [20]. And as such, collaboration is a necessary component of developing creative concept solutions to the wicked problems presented by design for social impact [21, 22].

As a process of inquiry, dialogue and debate are extremely important in allowing for generative insights and creating new ideas. Collective levels of awareness don’t always exist

and so facilitating diverse groups can be an onerous task. Often, teamwork is more effective and constructive when ideas can be shared on an equal footing [23]. The intellectual dynamics of sharing and 'joint efforts' can all complement each other in order to create a holistic picture. As well as looking at existing problems in novel ways, diverse groups can bring about the co-construction of new knowledge by creating collisions and dialogues that never occurred before [24]. Even contradictions and conflicts can steer conversations in new and exciting creative directions. Collaboration is a cyclical process of consultation, negotiation, compromise, decision-making, agreement and reflection [12].

The benefits of collaboration within a Social Innovation context are particularly evidenced in the relationships built, nurtured and continued once the 'project' has reached a conclusion. *'They leave behind compelling new social relationships between previously separate individuals and groups which matter greatly to the people involved, contribute to the diffusion and embedding of the innovation, and fuel a cumulative dynamic whereby each innovation opens up the possibility of further innovations'* [8].

6. The Projects

6.1 No.1: Teen Art Park

The Teen Art Park [TAP]¹ was a partnership between project initiator Designmatters, the Environmental Design Department at Art Centre College of Design and a coalition of two dozen community partners, with three principal partners that serve "at risk-youth" with arts and after-school programming: the Armory Center for the Arts, the Flintridge Foundation and Learning Works Charter High School. Across two academic terms in 2011, trans-disciplinary student design teams collaborated with underserved teens and community stakeholders. The briefs principal aim was to harness a community-driven vision for a dynamic public venue that would hold innovative infrastructure and arts programming benefiting underserved populations of teens. A place where teens could more than just escape from their problems, but would also be encouraged to deal with them through the arts.

The process employed through TAP imagined spaces for a teen demographic that is particularly vulnerable in a region of Los Angeles County which includes populations living below the US poverty line. These are teens that are prone to high youth unemployment and systemic cycles of gang related violence. Together the design teams in partnership with stakeholders developed unique platforms that encapsulated the teens' aspirations by offering flexible 'spaces' as outlets for individual and collective expression. The concepts that underwent final development were intended to be, not just an end unto themselves,

¹ <http://www.designmattersatartcenter.org/proj/teen-art-park-a-place-for-artistic-expression-2/>

but a departure point for the teens that would animate and use the structures for creative expression.



Figure 1: TAP research derived design criteria

The project was, first and foremost, driven by participatory research, drawing together input from the myriad of stakeholders involved. The research process included workshops and dialogue with youth, community leadership from local organisations, field trips, focus group research and community-based events, including two popular events in the city of Pasadena, "ArtNights" in which models for the park environment and full scale prototypes of how the park would be animated served as a testing ground for the designs concepts.



Figure 2: ArtNight Pasadena

The real value of the collaboration in this case study- which specifically entailed getting to a common understanding of the capacity of art to improve people's lived in their neighbourhoods- defined all of the project interactions DM facilitated with the main partner organisations that make up the TAP consortium. A diversity of perspectives meant reaching this common understanding proved difficult and complex. The variety of voices, interactions and collaborations that occurred throughout involved a multiplicity of stakeholders who had diverse and sometimes conflicting interests.

Dialogue and communication don't always have to be positive and encouraging. A healthy amount of debate, critical commentary and arguing is beneficial to taking advantage of and finding a balance between the diverse opinions of the team members [25]. Managing expectations, finding synergy and accepting the divergence of aims within collaboration whilst it can hinder and slow down the process, also enriches the outcomes. The outcomes are richer because they draw on a more diverse range of opinions, life experiences and knowledge that collaborators can impart. But partners must be prepared for a variety of possible outcomes that may be outside their comfort zone.

The richness and complexity of the project emerged further from the difficulties in reconciling academic calendars, educational learning outcomes and grant research aims, with the day-to-day pressures and obligations of resource constrained organisations serving a very vulnerable population of teens. Towards the end of the project the goal-posts shifted dramatically, moving the Park site from a permanent location to a temporary, undefined one. This required a shift in focus for the design teams as now the installations had to be flexible, modular and adaptable to a variety of unknown contexts.



Figure 3: Teen Art Park project outcomes: Hub, Graffiti Lounge and Chairmock.

6.2 No.2: Open Ocean

The second project for discussion is the Open Ocean² collaboration between the Aquarium of the Pacific in Long Beach, Designmatters, and the Interaction and Graphic Design Departments at ACCD. The collaboration also benefited from the engagement of experts in the field of marine science, oceanography, and change management. The brief was to create BIG, BOLD and RADICAL strategies that would drive public inspiration and commitment to ocean exploration—a largely under-funded domain in the US. The design teams in this course devised a multi-layered strategy for movement they named “Open Ocean”, a system of public interventions envisioned as a powerful call-to-action for public-driven support of ocean exploration.

The student teams quickly realized that creating a campaign would fall short of the project’s goals, since campaigns are typically short-lived, have a very specific function and are generally commercially based. In order to communicate with urgency, what was needed was a movement that would spark a sea change in the public’s perception of and engagement with ocean exploration. A movement could offer public adoption and traction that a campaign couldn’t. These insights couldn’t have emerged without the diversity of expertise offered by the project team and the immersive experiences that provided access points and inspiration for the design teams.



² <http://www.designmattersatartcenter.org/proj/open-ocean/>



Figure 4 & 4b: Open Ocean teams immersive research trip.

The design outcomes are best described as four strands (or entryways) for people to become involved with Open Ocean: *Play to Discover*, *Art & Science*, *Ocean Video Network*, and *Citizen Explorers*. Audiences are drawn into the movement from the edges, and the move towards the centre is offered through easy pathways and deeper involvements with greater participation.

The reality of collaboration and the mixing of personalities and worldviews became apparent through the project; simply put people don't always get on. Disagreements, arguments and a mismatch of aims can complicate the process. This can be attributed, in some way to multiple voices across different disciplines (Advertising, Illustration, Environmental, Graphics, Film, Science, Product & Graduate Industrial Design) leading to lack of common understanding and meanings being lost in translation. Communication between the participants is critical in collaboration. The participants must understand the language and behaviour of the different disciplines involved in order to share and create new knowledge [26].



Figure 5: Open Ocean co-design process in action.

Unfortunately the default in collaboration is often to focus on the individual experience with the interactions between the team being overlooked. The Open Ocean process and the outcomes demonstrate that the emphasis, when evaluating the impact of collaboration, should be focused on the collective rather than the individual experience. Here the synergy of the teams was reflected in how the individual skills, resources and perspectives combined to strengthen and enrich the collective experience.

The process undertaken through the project was far from linear and simple. It reflected more of a circular process- forwards and backwards, where difficulties arose in making decisions and gaining consensus. Intervention was needed from the facilitators to help steer the project and move the work forward. Clear communication channels between participants and the facilitators are essential for resolving the practical issues of sharing information, decision-making and co-ordinating tasks [12].

6.3 No.3: Northside Learning

The premise for the final study partnered design students with a group of second-level students from a disadvantaged city centre area and The Northside Learning Hub [NLH]³. The Learning Hub works in partnership with educators, parents, and local community and government agencies to provide an encouraging environment for youths to reach their full potential. Through the Hubs 'Learning Buddies' project, the designers developed a brief to provide flexible furniture solutions for a designated space within the NLH. Resources, equipment and materials were limited so cardboard was decided upon as the primary building material. A co-design approach was employed for the project, the teams worked

³ <http://www.learninghub.ie/furnituredesign.html>

collaboratively and in parity with stakeholders to design solutions that best fulfilled everyone's requirements.



Figure 6: NLH design team preparing for the building phase.



Figure 7: NLH project participants exhibit their final designs.

Throughout the project the design team- comprising the design students and eight teenagers, negotiated, interacted and collaborated with the social workers, the building

managers and the administrative staff. This immersive, co-operative, human centred and inclusive approach moves the educational agenda into the social realm and outside the traditional commercially focused design. The project highlighted how adopting this type of collaboration can bring about empathy, engagement and personal enthusiasm in a student that is often lost through more traditional design projects.

Other differences between commercial and social projects became evident through the NLH project. Social impact projects can experience limitations not always imposed on more commercial projects. Quick turnaround from initiation, to planning to implementation; a lack of financial resources and materials directly affected the process initially. Whilst this may appear to be a limitation that would restrict the design team, it in fact forced them to work within confines leading to greater ingenuity and innovation.

Over the twelve week duration of the project engagement from the participants peaked and waned. Engaging partners proved easy initially, however when the novelty wore off maintaining this engagement proved more difficult. Continuous involvement in the process can be maintained through clear feedback loops and open dialogical channels between all partners where discussion is encouraged and taken on board. The design teams left permanent pieces of furniture in the NLH's centre and through this payback a sustainable relationship was built that endured beyond the project. The notion of giving back and providing a 'tangible' result at the end of the project brings with it a positive sense of completion and achievement.

7. Key Lessons Learned

From our analysis of three project processes there are several lessons we can draw upon to inform and guide future work:

1. Human Behaviour

Even though you plan and prepare you still cannot account for human behaviour- it is unpredictable. Personalities have a major impact and different types of relationships will form; from strong, positive to weaker or more negative relationships. These relationships will evolve and change over the process.

2. Openness

The process is not linear. All partners in collaboration need to be comfortable with incomplete, messy and contradictory processes. This leads to flexibility in the individual and an ability to react and evolve within the collective.

Collaborating partners must learn to overcome disciplinary prejudices and learn to accept the diversity in language and behaviours. Partners need to see and experience issues from

the perspective of others drawing on empathy, and taking responsibility for the successes and the failures of the process.

The collaborative process can be complex to negotiate, particularly for novice participants. Intervention may be necessary for achieving synergy and maintaining engagement as changing goals shift project parameters. Good facilitation is key and knowing when and how to intervene can be the difference between moving forward and stagnation.

3. Communication & Conflict

Dialogue and communication don't always have to be positive and encouraging. Disagreement is part of the process as it takes advantage of, and finds a balance between, the diverse opinions of team members. A healthy amount of debate, critical commentary and arguing is beneficial. When communication channels become confused Storytelling can help to untangle strands of conversations, whilst also helping understand the motivations and backgrounds of others by making sense of situations.

4. Expectations

We should not expect that design for social impact work be the silver bullet and the answer to all issues. The process can be reactive and even when designers are in a position of critical agency to drive the process, collaborators must recognise the different types of project potential which can be short and/or long-term. Challenges may be resolved to varying degrees through collaboration but irrespective of the outcome the process provides space and the capacity to explore the potential of design to move social issues towards resolution. The diversity of voices within the collaborative process leads to a richness of ideas even if they are not fully resolved.

8. Conclusion

The collaborations that we highlight in this paper provide us with insights about the mediating role of design. Design emerges in these projects both as a mode of inquiry and practice, but also as a knowledge domain that can provide us with the tools to explore and shape possible and better futures for human beings. This capability of design collaboration to embody alternative futures and lend its voice to societal issues matters deeply, and it is one we hope to continue nurturing in our educational programs.

References:

1. Stempfle, J. and P. Badke-Schaub, *Thinking in design teams- an analysis of team communication*. Design Studies, 2002. **23**: p. 473-496.
2. Johnson, R.T. and D.W. Johnson, *Action Research: Cooperative learning in the science classroom*. Science and Children, 1986. **24**: p. 31-21.
3. Davis, M., *Why do we need doctoral study in Design?* International Journal of Design, 2008. **2**(3): p. 71-79.

4. Jonassen, D.H., J. Strobel, and C.B. Lee, *Everyday problem solving in engineering: Lessons for engineering educators*. Journal of Engineering Education, 2006. **95**(2): p. 1-14.
5. Detienne, F., *Online epistemic communities: theoretical and methodological directions for understanding knowledge co-elaboration in new digital spaces*. Work: A journal of Prevention, Assessment and Rehabilitation, 2012. **41**: p. 3511-3518.
6. Manzini, E. and E. Starszowski, eds. *Public and Collaborative: Exploring the intersection of design, social innovation and public policy*. 2013, DESIS Network.
7. Buchanan, R., ed. *Rhetoric, humanism and design*. Discovering design: Explorations in design studies, ed. R. Buchanan and V. Margolin. Vol. 23. 1995, University of Chicago Press: Chicago.
8. Mulgan, G., et al., *Social Innovations: What it is, why it matters and how it can be accelerated*. 2007, The Young Foundation: Oxford Said Business School.
9. Berger, W., *Glimmer*. 2009, London: Penguin Press.
10. Woodcraft, S., T. Hackett, and L. Caistor-Arendar, *Design for Social Sustainability: A framework for creating thriving new communities*. 2011, The Young Foundation: London.
11. Gardener, D.B. *Ten Lessons in collaboration*. The Online Journal of Issues in Nursing, 2005. **10**.
12. Chiu, M.-L., *An organizational view of design communication in design collaboration*. Design Studies, 2002. **23**(2): p. 187-210.
13. Kvan, T., *Collaborative design: what is it?* Automation in Construction, 2000. **9**(4): p. 409-415.
14. Steiner, G. and D. Laws, *How appropriate are two established concepts from higher education for solving complex real-world problems? A comparison of the Harvard and the ETH case study approach*. International Journal of Sustainability in Higher Education, 2006. **7**(3): p. 322-340.
15. Svihla, V., *Collaboration as a dimension of design innovation*. CoDesign, 2012. **6**(4): p. 245-262.
16. Dewey, J., *Logic: The theory of inquiry*. Vol. H.Holt and Company. 1938 reprint 2008: New York.
17. DiSalvo, C., *Adversarial Design*. 2012, London: MIT Press.
18. Volpentesta, A., M. Muzzupappa, and S. Ammirato, *Critical Thinking and concept design generation in a collaborative network*, in *IFIP International Federation for Information Processing*, L. Camarinha-Matos, Editor. 2008, Wiley-Picard: Boston. p. 157-164.
19. Rittel, H., *The reasoning of designers*, in *International Congress on Planning and Design Theory*. 1987: Boston.
20. Lasker, R.D., E.S. Weiss, and R. Miller, *Partnership Synergy: A practical framework for studying and strengthening the collaborative advantage*. The Millbank Quarterly, 2001. **79**(2): p. 179-205.
21. Mamykina, L., L. Candy, and E. Edmonds, *Collaborative Creativity*. Communications of the ACM, 2002. **45**(10): p. 96-100.
22. Dykes, T.H., P.A. Rodger, and M. Smyth, *Towards a new disciplinary framework for contemporary creative design practice*. Co Design, 2009. **5**(2): p. 99-116.
23. Paulus, P.B., *Different ponds for different fish: A contrasting perspective on team innovation*. Applied Psychology: An International Review, 2002. **51**(3): p. 394-398.

24. John-Steiner, V., *Creative Collaboration*. 2000, New York: Oxford University Press Inc.
25. Sobol, D. *Innovation is about arguing, not brainstorming. Here's how to argue productively*. Fast Company, 2012.
26. Valkenburg, R. and K. Dorst, *The reflective practice of design teams*. Design Studies, 1998. **19**: p. 249-271.

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