

Fostering Effective Models for Social Entrepreneurship in Design Education: Lessons Learned from the *Safe Agua* Case Study

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Abstract: Water scarcity is one of the main societal issues confronting humanity in the 21st century with an interconnected set of hardships for growing populations living in informal urban settlements. *Safe Agua*, a design for social innovation initiative, has developed products and services that meet the challenges of safe water access for populations of Latin American urban slum dwellers while fostering effective models for design-centric social enterprises. From our firsthand perspective as participants in *Safe Agua*, we examine the lessons learned from designing and incubating student projects that carry the aspiration of production and implementation at scale in the context of a base of the pyramid marketplace. By highlighting *Safe Agua*'s award-winning product, *GiraDora*, we discuss the integration of field research and co-creation as a driving principle of our design pedagogical framework. We further include generalizable insights about balancing design instruction with the demands of social entrepreneurship objectives, reflecting on strategies for addressing the real-world constraints of collaboration with a diversity of stakeholders across geographic regions. We conclude with insights about both the opportunities and the challenges inherent to disrupting traditional models of design curricula presented by the emerging field of design for social innovation education.

Keywords: social innovation, social innovation education, safe water access, user-centered design research, co-creation, social design, products and services for the base of the pyramid, social entrepreneurship.

Introduction

Water scarcity is one of the main societal issues confronting humanity in the 21st century. According to recent estimates of the WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation (JMP, 2015), 44 percent of the global population lives without piped drinking water in their homes; 32 percent—2.4 billion

people—lacked improved sanitation facilities, and 663 million people—approximately 1 in 9—still used unimproved drinking water sources in 2015 (WHO/UNICEF, 2014). Lack of access to safe water and basic services including sanitation are at the root of a complex set of interconnected hardships, including disease and impoverishment for growing populations living in informal urban settlements. In Latin America and the Caribbean alone, over 110 million people currently live in slums without access to such infrastructure and services (UN Habitat, 2014).

Water scarcity and lack of sanitation as opportunities for design innovation are a central objective of *Safe Agua*, a series of design for social innovation courses with rigorous co-creation design methodologies and impactful social entrepreneurship outcomes. Spearheaded by Designmatters and the Environmental Design departments at Art Center College of Design since 2009, *Safe Agua* is an ongoing transdisciplinary initiative that offers students the opportunity to participate in experiential learning made possible through the Designmatters partnership with Techo, a housing and poverty-alleviation Latin American-based nongovernmental organization, and Socialab, a consultancy for social innovation startups that emerged from Techo's Innovation Center.¹ *Safe Agua* student teams have developed a series of award-winning products and services, a few of which have been successfully incubated beyond the academic setting and are undergoing different stages of commercialization and/or implementation.

This paper brings together our joint perspectives as hands-on participants in *Safe Agua* and offers our reflections from our different roles in the initiative: as project leaders and educators (Amatullo and Herscovitch) and as a former student and social designer and entrepreneur (Prieto). The objectives of our paper are threefold: 1) to highlight key challenges and lessons learned in the process of developing and incubating the typology of projects that have emerged from the *Safe Agua* initiative; 2) to describe key principles and effective organizational strategies developed for the pedagogical framework utilized that may offer replicable insights; and 3) to discuss the fluid

¹ Archival information on the *Safe Agua* initiative and its outcomes and publications can be accessed through a project search of the Designmatters website at <http://www.designmattersatArtCenter.org/>. Reference sites for Techo: <http://www.techo.org/en/techo/que-es-techo/> and Socialab: <http://socialab.com/>.

nature of inserting social entrepreneurship business models into traditional models of design curricula while mentoring design students for career pathways in social innovation.

Our paper is organized as follows: First, we briefly introduce a few theoretical foundations that underpin our curricular approach to design education for social innovation and social entrepreneurship. Second, we present an overview of the *Safe Agua* course series and describe its pedagogical framework, including key milestones and learning objectives such as the importance of the co-creation methods that are essential to the guiding principles of the course. Finally, we conclude with a discussion about our key takeaways from navigating the complexity inherent to integrating social entrepreneurship aims in a design education context. We offer the successful example of *Safe Agua Peru's GiraDora* product as an illustration that amplifies different aspects of the overall argumentative arc of our paper.

The emerging field of design education for social innovation and social entrepreneurship

As a non-degree granting educational department founded in 2001, Designmatters engages all majors taught at Art Center with a dynamic, entrepreneurial and experiential approach to design education that relies on strategic collaborations with social, public and private sector organizations that are striving to design a better and more humane future for all. Today, Designmatters is part of a larger context of other design education academic initiatives and degrees in the U.S. and internationally that demonstrate the power of an emergent field of design inquiry and practice that is oriented toward new possibilities for action and human progress, and is clearly grounded on the premise that design as a knowledge domain can contribute to making a positive societal impact.² This subset of design education activities is often referred as design education for social impact or design for social innovation. Designmatters

²In the US, programs in art and design that have a similar social innovation/social justice focus as Designmatters have become more prominent in recent years. Notably, they are distinct from Designmatters by offering curricula at the graduate level (a few prominent programs and centers include the School of Visual Arts MFA Design for Social Innovation, NY; MICA's Center for Social Design, Baltimore; and The New School Parsons Desis Lab, NY). While Designmatters partners with the MFA Media Design Practices Field track at Art Center (also focused on a social mission in its design pedagogy), its predominant portfolio of transdisciplinary projects are conducted at the undergraduate level.

projects such as *Safe Agua* often adopt the usage of both two terms interchangeably, although for the purposes of this paper it is helpful to signal that the pedagogical framework of the *Safe Agua* initiative is primarily aligned with the following two foundational definitions that we expand upon briefly below.

1) Design for Social Innovation

The multidimensional definition of *design for social innovation* that we adopt refers to *a new solution (product, service, model, process, etc.) that simultaneously meets a social need (more effectively than existing solutions) and leads to new or improved capabilities and relationships and better use of assets and resources* (Grice et al, 2012). In this context of design education, there is an expectation for students to experiment with a pluralism of methods and approaches (Jégou & Manzini, 2008; Manzini, 2014; Mulgan, 2014) in which the design process is spread among diverse participating stakeholders and competences (Bjögvinnsson, Ehn, & Hillgren, 2012) that are directed towards processes of social change and transformation. Part of the anticipated learning outcomes of such projects is for students to reframe problems, create socially innovative solutions, and contribute breakthrough thinking about the ways things are done, and the way social needs are conceptualized (Grice et al., 2012; Amatullo, 2015).

2) Design and Social Entrepreneurship

The social entrepreneurship movement in academia has steadily gained traction in major universities curricula in the U.S. and around the world since the 1990s, albeit predominantly in business schools and less so in design institutions. In the design education context of *Safe Agua*, *social entrepreneurship* is explored as *an innovative, social-value creating activity that can occur within or across nonprofit, businesses or government sectors* (Austin et al, 2006) *and is posited as an approach to create products and services that cater to basic needs (in this case safe water access and use) that remain unsatisfied by the current socio-economic and cultural context of the community of study* (Mair, J & Marti, I, 2006).

Furthermore, the following common concepts from the social entrepreneurship field (Brock, D & Steiner, S, 2009) characterize the goals of Designmatters projects that are fostered by initiatives such as *Safe Agua*: 1) addressing social needs/problems that make a positive contribution to the community, 2) innovation and opportunity

recognition, 3) intention to scale a social venture, 4) creating a sustainable business model, and 5) aspiration to measure outcomes. Each of these five concepts is furthered expanded upon and exemplified by the *GiraDora* project, discussed in detail later in this paper.

An Overview of Safe Agua

Safe Agua has been conceived as an ongoing transdisciplinary series of design research and social innovation courses in the college's undergraduate curriculum that have aimed to develop products and services that meet the challenges of safe water access for populations of urban slum dwellers in Latin America. The initiative has been developed in partnership with [TECHO](#) (a prominent Latin American NGO that serves communities living in slums) and [SOCIALAB](#) (a consultancy and incubator for social innovation startups that spun off TECHO's Innovation Center). *Safe Agua* has also relied on the collaboration with, and participation of community members in each of the field research settings where three subsequent phases of the initiative have taken place to date: in urban settlements of Santiago, Chile (2009); Lima, Peru (2011-12), and Bogota, Colombia (2013-14). Each iteration of the *Safe Agua* courses was designed by building on the pedagogical insights of each previously held studio; all three have fostered effective models for design-centric social enterprises and/or products that have gone beyond the classroom and been incubated to reach various levels of pilot testing with communities (Amatullo & Ruffino, 2014, Amatullo & Herscovitch, 2012, Amatullo et al, 2011; Amatullo, Becerra & Montgomery, 2011).³

³ Key products and services that have been implemented/and or piloted in collaboration with Techo are the following: from *Safe Agua Chile*, the *Mila* laundry center (designer Stephanie Stalker) and the portable shower *Ducha Halo* (designers Narbeh Dereghishian and Jessica Yeh); from *Safe Agua Peru*, the adaptable faucet *Balde a Balde* (designer Kimberly Chow) and *GiraDora* (designers Alex Cabounoc, Ji A You and Mariana Prieto) and from *Safe Agua Colombia*, *Calientamigos* (designers Kevin Chang, Tianyi Sun, Della Tosin and Mariana Somma) and *Community Learning Garden* (designer Stefanie Dhillon, implemented by community leader Nohora Guerrero).



Figure.1 Field research in *Safe Agua* Colombia.

Safe Agua integrates social entrepreneurship teaching instruction through a partnership with the University of Southern California's Marshall School of Business Brittingham Social Enterprise Lab, where the director of the program and graduate students collaborate with the lead design faculty on key modules and various stages of project incubation that emphasize business and entrepreneurship skills and methods within the social mission framework of the initiative.⁴

***Safe Agua* Pedagogical Framework**

The *Safe Agua* course framework guides students through a 16-week research and design process to create outcomes with the potential to take on an entrepreneurial

⁴ We are particularly grateful for our ongoing collaboration with Adlai Wertman, Professor of Clinical Entrepreneurship and Founding Director and Abby Fifer Mandell, Executive Director, Brittingham Social Enterprise Lab, Marshall School of Business, University of Southern California.

life, working towards the aspiration of real world impact beyond the class. To this end, the partnership with a business school such as Marshall allows students to not only develop innovative products and systems, but also to map strategies and begin to understand the complex commercial ecosystem involved in bringing these ideas to fruition.

The course follows an iterative human-centered design process, educating students in a sequence of social design methodologies, outlined in Table 1. At the same time, it affords students a chance to bring their creative passion and original thinking to address entrenched social problems, and ultimately seeks to empower students to apply this design thinking process to future design challenges.

Table 1: Safe Agua Course: Timeline, Activities and Milestones

WEEK	PHASE	KEY ACTIVITIES	GOALS/OUTPUTS
1-2	Field Research	<ul style="list-style-type: none"> • Immersive field research with families and community partners to uncover needs, constraints & aspirations • Method cards guide students through participatory, qualitative & quantitative research methodologies • Community action exercise 	<ul style="list-style-type: none"> • Establish empathy and deep connections with local families • Identify important, relevant problems to address that apply both locally and globally • Seek the powerful, yet realizable, design opportunities
2-3	Research Analysis & Problem Definition	<ul style="list-style-type: none"> • Organize & analyze research collected • Define problems where design can make an impact • Visually communicate and analyze the problem using: <ul style="list-style-type: none"> ◦ storyboarding ◦ problem-mapping 	<ul style="list-style-type: none"> • Collectively, along with community leaders and partner organization, identify the most salient problems and begin to address these challenges
4-5	Creation of opportunity areas	<ul style="list-style-type: none"> • Cross the problem with values and resources, consumption patterns, and aspirations • Ask questions like “how might we...?” and “what if...?” • Apply filters / criteria: <ul style="list-style-type: none"> ◦ potential to make a significant impact for people’s lives (quantitative/qualitative impact on well-being; income; daily life; dignity) ◦ alignment with families’ top priorities +students passion ◦ potential to scale up 	<ul style="list-style-type: none"> • Define opportunity areas – spaces to begin to generate a range of solutions • Prioritize opportunity area to create social impact & aligns with student personal passions

6-9	Design Ideation & Iteration	<ul style="list-style-type: none"> • Brainstorming & mind-mapping • Sketching • Thinking through making • Creating iterative prototypes 	<ul style="list-style-type: none"> • Generate design concepts within opportunity area • Iteratively develop, test & refine initial design solutions
6-9	Business Model Development	<ul style="list-style-type: none"> • Social entrepreneurship lectures, exercises and critiques 	<ul style="list-style-type: none"> • Consider the value chain and articulate preliminary business models
9-10	Midterm Review & Refinement	<ul style="list-style-type: none"> • Present design proposal options, as well as the key elements of the process 	<ul style="list-style-type: none"> • Receive feedback from guest critics with diverse perspectives in how to develop designs
11-12	Field Test & Iterate Prototypes	<ul style="list-style-type: none"> • Representative faculty & students return to field-test working prototypes of products, services, systems, business models w/community & partners • Make specific refinements to designs (or pivot) based on field-testing response 	<ul style="list-style-type: none"> • Elicit community feedback, essential to incubating and iterating designs to create the most value for users
12-16	Execute Final Design	<ul style="list-style-type: none"> • Fabricate final models, renderings in context, drawings & presentation 	<ul style="list-style-type: none"> • Functioning prototype of product/system/service
12-16	Business Model Revision	<ul style="list-style-type: none"> • Strategy mapping workshop • Business model canvas, value proposition & value chain 	<ul style="list-style-type: none"> • Proposal for business & implementation strategy
16	Final Presentation	<ul style="list-style-type: none"> • Create a professional presentation to share with an audience of educators, partner organizations & professionals 	<ul style="list-style-type: none"> • Discussion and feedback to help identify potential for future project refinement, piloting, development & implementation

In contrast to many traditional design studios where students' final presentation concludes the class, in *Safe Agua* the "final" is truly a departure point. In order to nurture projects with strong potential, Designmatters has created a new, innovative course in the curriculum: the Development Seminar, an elective extension of the core *Safe Agua* course into the following term. This course emerged to meet the project's needs, based on the lesson that students and their projects thrive with structured support after the end of the studio. A platform for development, this seminar shepherds highly motivated student teams as they set goals and strategies for advancing their projects to the next level. During the seminar, teams identify new advisors and team members, apply for grants and awards, plan and conduct a further round of pilot testing and design iteration, and pitch to potential strategic partners.

While the Development Seminar has established a track record of yielding grants, international accolades and publicity, a key challenge that remains is how to propel projects to reach “escape velocity”—so that they can survive beyond graduation, when real world financial and career pressures emerge. While faculty mentorship continues informally beyond the Development Seminar, we have identified the need to develop a stronger institutional infrastructure for supporting team members beyond graduation, and are currently exploring how best to foster career pathways in social entrepreneurship, within the context of a small private design college.⁵

Collaboration and User-Participation Methods as Driving Principles of *Safe Agua*

In design education for social innovation, empathic engagement with users becomes the source for critical insights that capture people’s concerns and aspirations in open-ended processes of innovation. In the public and social sectors, this co-creation process is considered critical to fostering effective collaboration, supporting social innovations (Cantu & Selloni, 2013), and ultimately yielding sustainable project outcomes (Jégou & Manzini, 2008; Staszowski & Manzini, 2013). The *Safe Agua* initiative deploys this co-creation approach as an important principle both in the field and in the studio, keenly engaging students in methods and a design process that has them acting as facilitators and mediators with non-designers (community leaders, participating users) in order to uncover insights that inform the process of making and design.⁶

During field research, method cards and class exercises guide participatory understanding of people’s needs, constraints and aspirations. For example, in seeking to design systems, a “Resilience and Networks” method card prompts students to

⁵ Designmatters at Art Center has served as a convener of a US-wide discussion about opportunities and challenges for career pathways for designers that embrace design for social innovation. For more see *LEAP: The New Professional Frontier for Design and Social Innovation* symposium website at: <http://leapsymposium.org/> and Amatullo, M. (2014). “Codifying Practices in an Emergent Space: Insights from the LEAP symposium on the New Professional Frontier in Design for Social Innovation,” *Design Principles and Practices: An International Journal, Annual Review*, Vol. 7. Accessible at http://blogs.Art Center.edu/dottedline/wp-content/uploads/2014/06/Codifying-Practices-in-an-Emergent-Space_Amatullo.pdf.

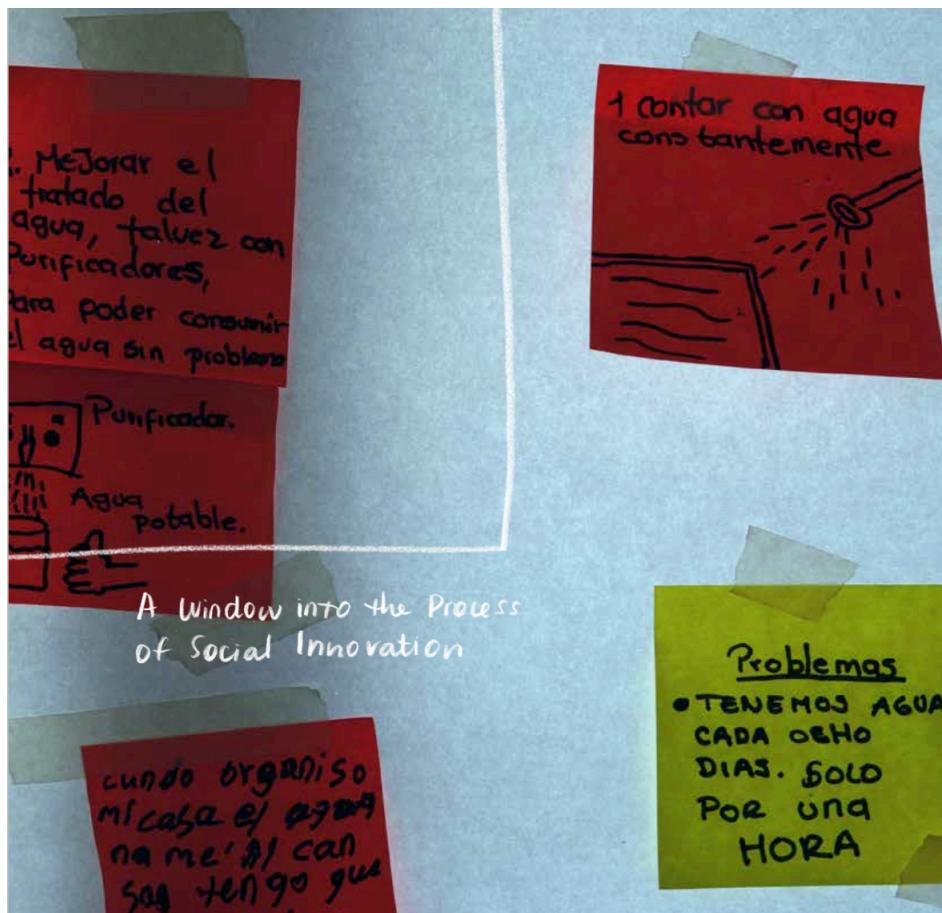
⁶ Frog Design’s Collective Action Toolkit (www.frogdesign.com/CAT) serves as an excellent, open source guide in this process of student-lead community engagement.

diagram water-related social networks, asking families to describe coping mechanisms when they run out of water.⁷

While co-creation begins during the field research phase, it does not comprise a single instance or phase in the course, but rather serves as a guiding principle that drives every phase in the design process that students are expected to follow. Co-creation helps guide students' understanding of cultural context and the locality of values. Throughout, ongoing community feedback becomes essential to build trust between all participants, incubate and iterate designs, understand user' priorities and create the most value for the partner community.



⁷ For example, in *Safe Agua Colombia*, the insights from this method card directly influenced one of the student projects, the *Papa Community Water Sharing System*, an entrepreneurial model for a community water exchange incentivizes families with extra water to share with those who run out of water frequently by donating it to the *Papa* communal water filtration vessel in the community's local soup kitchen. See more at <https://vimeo.com/93518434>.



Figures.2 & 3 Community co-creation exercise in Altos Del Pino, *Safe Agua* Colombia.

Beyond the Classroom, Toward the Market: Introducing *GiraDora* as an Example of Co-Creation and Social Entrepreneurship

Teams of recent Art Center graduates have formed social enterprises to develop and work toward launching products that emerged from *Safe Agua*, with faculty and Art Center institutional mentorship, the collaboration of faculty and students from the Brittingham Social Enterprise Lab, as well as support from new strategic global partners, grants and business accelerators⁸. For purposes of illustration and in-depth discussion, this paper focuses one of the award-winning projects from the initiative, *GiraDora*.

⁸ In the case of *Giradora*, the extension of resources outside the curricular context of Art Center's Designmatters Department have included faculty course and E-Team student grants from the VentureWell Foundation, as well as The Tech Award, a prestigious financial award from the Tech Museum of Innovation in San Jose, California.

GiraDora is an innovative, human-powered, combined clothing washer and spin dryer that saves water without the need for electricity, reduces the time wash a load of laundry, and improves the experience of washing clothes for families living without access to running water. Conceived during *Safe Agua Peru* by the team of Cabunoc and You, field-tested by Prieto and further developed with USC Brittingham MBA graduate Jonathan Beckhardt, the history of the product's conception and development exemplifies the driving principle of co-creation and the key five concepts of social enterprise that we outlined earlier. Table 2 summarizes these concepts and how they manifest.

Table 2: Social Enterprise Principles of GiraDora

1) central social purpose/mission	Defines the product's purpose (washing clothing in a manner that breaks cycle of poverty and minimizes health-related risks)
2) innovation /opportunity recognition	In social entrepreneurship fashion, team saw in the problem of lack of laundry solutions and place to offer a novel product that is technically feasible and financially viable for the target base of the pyramid consumer
3) intention for scalability	Scale is a key component of social entrepreneurship because social ventures and innovative products are measured in terms of their expected social impact and replicable potential. <i>GiraDora</i> has been focused from its inception on Cerro Verde's community of users needs and envisioned as a product to improve their social condition (in this case the burden of laundry). As the current stage of pilot testing in Mexico attests, <i>GiraDora</i> has a proof of concept already that shows its promise for dissemination and replication in other similar markets outside Cerro Verde.
4) sustainable business model creation	Developing a business model that can be sustained over time and balances economic and social value creation for its organization is part of all effective social enterprises. The <i>GiraDora</i> 's team LLC <i>Blue Barrel Concepts</i> and the current contractual agreement for the product aspires for that model.
5) aspiration to measure outcomes	Measuring outcomes is critical to social entrepreneurship as it often goes hand in hand with achieving sustainable, scalable results. The <i>Safe Agua</i> courses introduce students to Business Model Generation Canvas methods, concepts of triple bottom line value (people, planet, profit) and such

	principles are exemplified by the trajectory of <i>GiraDora</i> 's development.
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During the span of the last three years since the course, *GiraDora* has gone on to gain design awards and seed grants as well as global interest from private sector companies and social impact investors. This has represented key support for the team that has, since graduation, founded the LLC *Blue Barrel Concepts*. *GiraDora* is presently the core product under development of their social enterprise, which has a contract with a prominent Latin American manufacturer of domestic goods for pilot testing in the Mexican market.

Before being at the helm of the current product's market testing with the manufacturer in Mexico, Prieto field tested the initial *GiraDora* prototype in Cerro Verde during the 2011 *Safe Agua Peru* course to help assess the viability of the product with base-of-the pyramid consumers. The pull-out section below offers her firsthand perspective during the Cerro Verde field testing—a critical stage of co-creation that resulted in perhaps the product's key breakthrough innovation: its combined washer-and-drier feature.



Figure.4 Engineers carrying *GiraDora* prototypes.



Figure.5 *GiraDora* market stand: Testing *GiraDora*'s response at a Sunday market and engaging with potential users.

A Firsthand Perspective on Co-Creation by Mariana Prieto

Cerro Verde is a beautiful place, where the dirt roads squiggle through steep hills in between colorful homes with aluminum walls and vinyl rooftops made from repurposed political campaign banners. This was the second time I had visited Cerro Verde—for this visit I had been chosen to bring prototypes to test in the field, and collect findings for the *Safe Agua Peru* teams back at Art Center before the midterm of our course.

At this point of the process it was clear that hand-washing laundry was an arduous, and at times painful, task, but it was unclear what the best way to alleviate the burden would be. The team had designed three prototypes to be tested in the field: two washers, one of which loosely resembled a plunger, and a wringer made of planks of wood and a Home Depot bucket that spun like a salad spinner. The objective was to choose between a washer and a wringer to dedicate the teams' effort into designing a single function product that would either wash or wring without electricity or running water.

After a few days of testing we were getting feedback on the wringer prototype alongside a dirt road on the Cerro Verde hillside. As we were testing the product a couple of women came walking down the road and looked over at what we were doing. As they got closer I could hear them debating and asking, “Do you think that’s a washer?” “No, I think it’s for drying... but how would that work?” When they were close enough I approached them and encouraged them to join our group. They seemed shy, but eventually opened up and came to our circle. “So, what is it? Is it a washer or a wringer?” when we answered that it was a wringer, something clicked with the

entire group, and almost in chorus, they reacted in the same way: “Why can’t it be both?”

With no real answer to this question, we started taking the existing prototype apart on the spot and, using plastic bags and old pipes we found on the side of the road, converted it into our best version of a combination washer/wringer. After tinkering with it together, one of the ladies took off her sweater, dirtied it on the ground and tried our contraption out—and it worked! The sweater was washed and dried to an acceptable standard, given our rudimentary approach. They discussed who would keep the one-of-a-kind prototype and eventually decided to share it amongst the various homes.

Once this proof-of-concept worked, there was no reasonable motive to go back to the original single function product. The problem, though, was coming back home and breaking the news to the team. It was overwhelming enough to produce a single-function device that worked without electricity or running water, but the research showed us that we needed to create a *dual*-function machine.



Figure.6 Prieto field testing early Giradora prototype in Cerro Verde, Peru

Social Enterprise in Design Education for Social Innovation: Key Takeaways

The *Safe Agua* initiative presents powerful empirical evidence of the opportunities and challenges that are inherent to integrating social entrepreneurship in design education curricula that is directed toward meeting societal needs and nurturing students through a pedagogical framework that can lead them to conceive and develop products and services that can become successful social ventures as exemplified by the *GiraDora* case. In this final section of the paper, we expand on one key area of

lessons learned: how to successfully balance and adapting the design curriculum to the complexity and fluid nature of collaboration, multiple stakeholders and real-world constraints. We also offer a few reflections about strategies to overcome the limitations one may encounter in traditional design education models and supporting infrastructure.

Overcoming Complexity

From the perspective of the project management and design faculty team, how does one inspire design students to embrace social impact design and social entrepreneurship models as exciting and viable career pathways? How does one overcome the challenges of following through a syllabus with traditional design outcome expectations within the traditional confines of the limited timeframes of the academic setting and reconcile design instruction goals, field research in a foreign country and highly disadvantaged socio-economic context, while simultaneously preparing students to learn how to create strategic partnerships, obtain financial resources, and secure the expertise to build their own social enterprises as a continuum to their educational experience in a social innovation? With the *GiraDora* case we have already highlighted key aspects of the pedagogical framework that allows us to navigate this complexity. Further takeaways and reflections are the following:

- Challenge the students to accept that they will have to work in circumstances where everything is a moving target, and transitions into the unexpected are part of the territory: resourcefulness and being adept to become opportunity seekers that take advantage of the resources at hand is a key ingredient of success
- Resist the urge to predetermine the design brief and its deliverables in too narrow a fashion. In other words, question of pipeline at the end: while you don't want to approach teaching the course with preconceived notions or assumptions about its outcomes, it's key to anticipate and be as rigorous as possible in "front loading" the process (i.e. line up partners such as business faculty and other local experts on the ground in advance who can support the challenging step of taking product to market)
- Secure and nurture trust with your organizational partners in the project to ensure you have access to the community in a way that will allow the design

- team to build bridges and sustainable ties with the community who participates in the project
- Develop ongoing strategies and channels for communication and dialogue with users to maximize co-creation throughout every step of the process
 - Seek to rely on, or if necessary build, an institutional infrastructure that can maximize a continuum of learning and adequate incubation of projects, allowing students to receive faculty mentorship, and access to a diverse range of expertise that can prepare them to create the value network they will need to take their social enterprise forward into the marketplace
 - Remember that while partners are essential to social innovation projects that have the aspiration to go beyond the studio and into the community with projects that may have a long term impact on society, the more stakeholders you add to the process, the more complexity you will need to confront and manage.

From the perspective of a participating student and now a social impact designer in the space, a few takeaways are the following:

- Learn storytelling and how you edit the story: a job well done is reaching the point of discovering the truth about your product's chances of survival and, as in the case of *GiraDora*, convincing a large multinational corporation to believe in that story and confront its real business challenges together.
- Embrace uncertainty and ambiguity as part and parcel of what it takes to design in the space: approach design innovation as if you were a sponge that absorbs all insights from the research process, knowing well that celebrating iteration and failing fast and failing better is a productive way into learning.
- Trust that an empathic, user-centered design process, even when it yields information that will be difficult for your team to accept is the *only* way to design in this field and build a legitimate career pathway as a social designer.

Conclusion

In this paper, we highlight the case study of the *Safe Agua* design for social innovation initiative and *GiraDora*, one its most successful student project outcomes to date. Important insights emerge from our perspectives as participants in these projects, providing us with lessons learned about the opportunities and challenges that remain for educators and students in the field who are committed to fostering design-centric social enterprises that will be successfully incubated from the context of art and design institutions. While this case study may not provide all of the answers to addressing the great complexity of teaching and practicing in the field of design for social innovation, we trust that our example is one that can offer an inspirational foundation for others to reflect and build upon.

References

- Amatullo, M. (2015). *Design Attitude and Social Innovation, Empirical Studies on the Return of Design*, PhD dissertation, Weatherhead School of Management, Case Western Reserve University, Cleveland, OH.
- Amatullo, M. & Ruffino, E. eds. (2014) *Safe Agua Colombia*, Designmatters, Art Center College of Design, Pasadena, CA. Available from <http://www.magcloud.com/browse/issue/773901>
- Amatullo, M. & Herscovitch, P. (2012). “Perspectives about Design Education for Social Innovation: the Safe Agua Case Study,” Cumulus Working Papers, *Projecting Design*, DUOC, Santiago, Chile. Available from http://www.designmattersatArtCenter.org/wp-content/uploads/Projecting-Design-paper-publication_Safe-Agua-case-study.pdf.
- Amatullo, M., Becerra, L, Gottlieb, D. & Herscovitch, P. eds. (2011). *Safe Agua*, Designmatters, Art Center College of Design, Pasadena, CA.
- Amatullo, M., Becerra, L., Montgomery, S. (2011). “Desigmmatters Case Studies: Design Education Methodologies as a Tool for Social Innovation.” VentureWell Open Conference. Washington DC. Available from <http://www.designmattersatArtCenter.org/wp-content/uploads/Design-Education-Methodologies-as-a-Tool-for-Social-Innovation.pdf>.
- Björgvinsson, E., Ehn, P., & Hillgren, P.-A. (2012). Design things and design thinking: contemporary participatory design challenges. *Design Issues*, 28(3): 101-116.
- Brock, D. & Steiner, S. (2009). “Social Entrepreneurship Education: Is It Achieving the Desired Aims?,” Available from <http://dx.doi.org/10.2139/ssrn.1344419>
- Cantu, D., & Selloni, D. (2013). “From engaging to empowering people: A set of co-design experiments with a service design perspective,” *Social frontiers: The next edge of social innovation research* London Nesta.

Grice, J.-C., Davies, A., Robert, P., & Norman, W. (2012). : "The Young Foundation Social Innovation Overview." A deliverable of the project: *The theoretical, empirical and policy foundations for building social innovation in Europe (TEPSIE)*, European Commission- 7th Framework Programme. Brussels: European Commission, DG Research. Available from <http://www.tepsie.eu/index.php/publications>.

Jégou, F., & Manzini, E. (2008). *Collaborative services: Social innovation and design for sustainability*. Milano: Edizioni Polidesign.

Mair, J. & Marti, I. (2006). Social Entrepreneurship Research: A source of explanation, prediction and delight. *Journal of World Business*, 41: 32-44.

Manzini, E. (2014). Making Things Happen: Social Innovation and Design. *Design Issues*, 30(1): 57-66.

Mulgan, G. (2014). *Design in public and social innovation*: Nesta.

Staszowski, E., & Manzini, E. (2013). *Public and collaborative, exploring the intersection of design, social innovation and public policy*: The DESIS Network.

UN Habitat, available from <http://unhabitat.org/urban-themes/housing-slum-upgrading/>

WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation (JMP), 2015, available from <http://www.wssinfo.org/> and http://www.wssinfo.org/fileadmin/user_upload/resources/JMP-Update-report-2015_English.pdf.