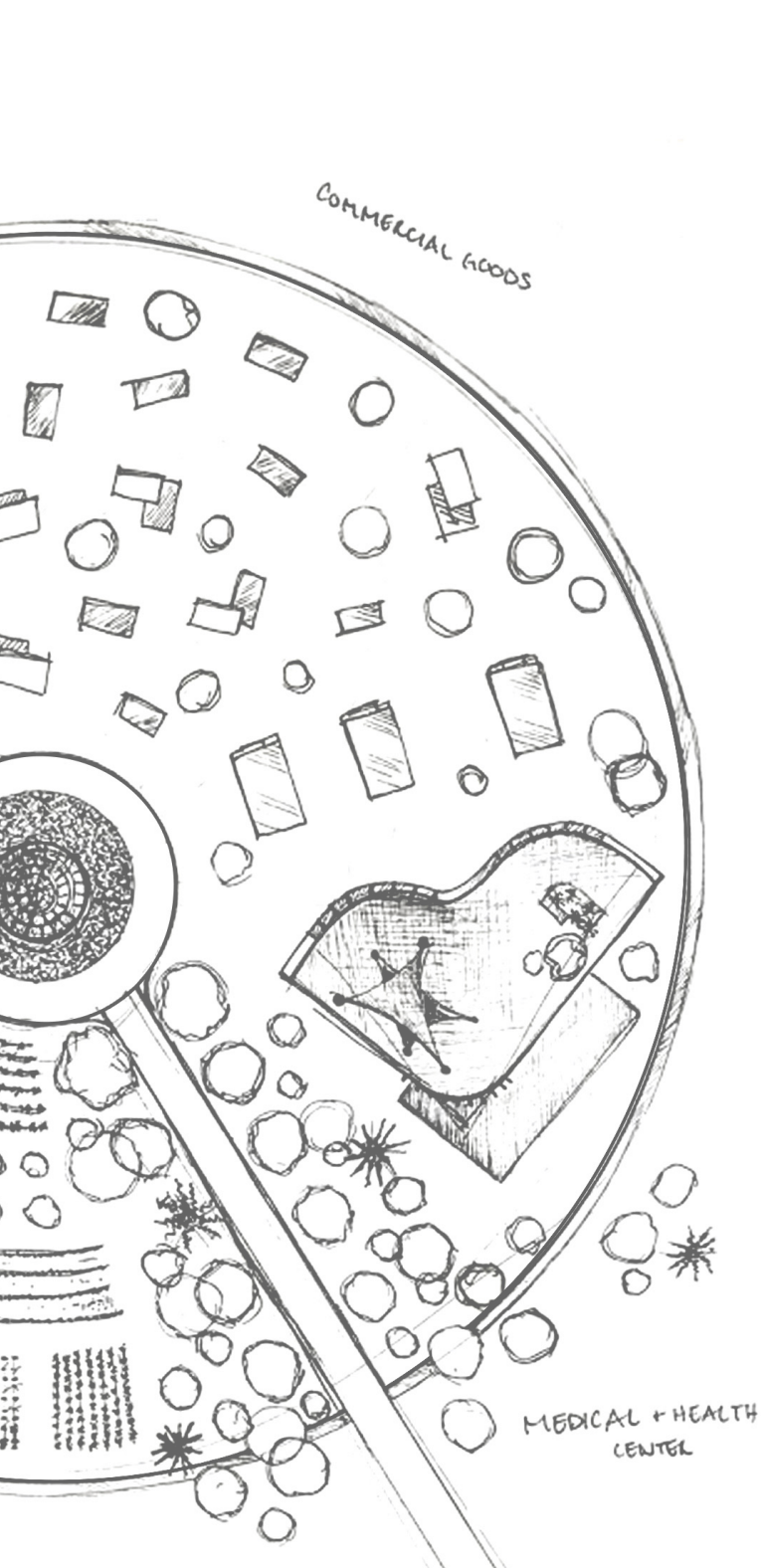
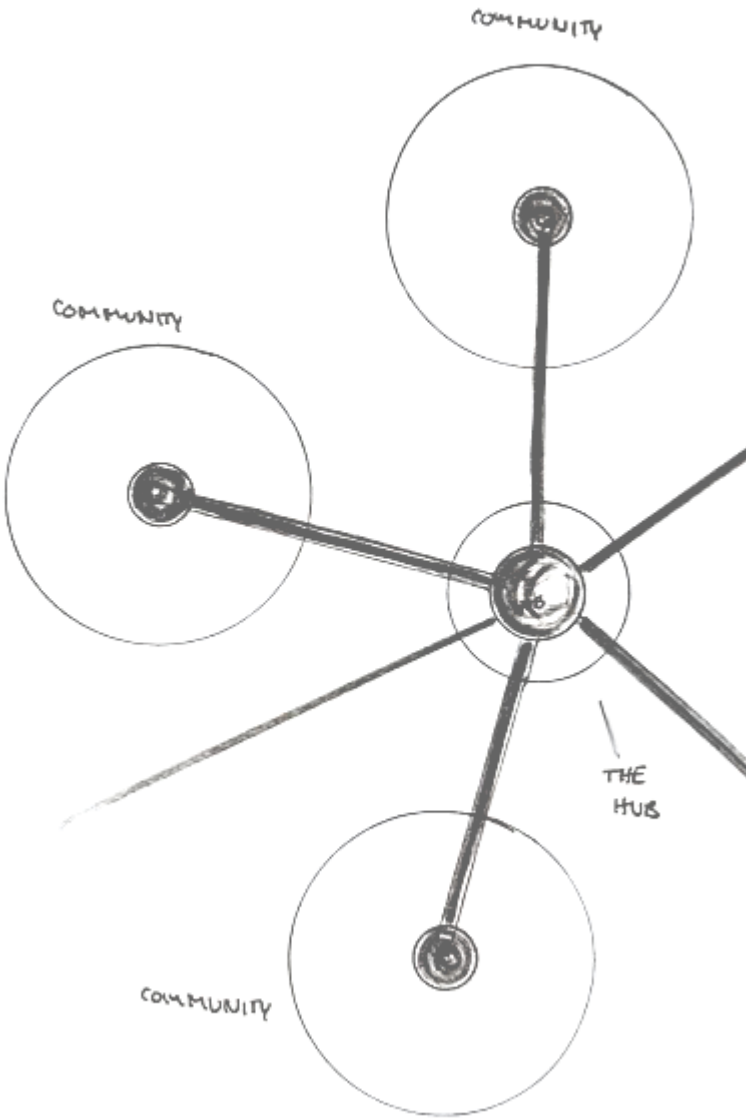
INSIGHTS

4th-Year Students' Reflections on Design for Social Innovation





Edited by Chiara Del Gaudio

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Introduction & Acknowledgements

This book is the result of *IDES4001 A – Industrial design seminar*, a 4th-year theoretical course of the School of Industrial Design at Carleton University that was held in the fall term 2019.

IDES4001 is a course for undergraduate students that focuses on the exploration of a key contemporary design topic, through readings, debates, and writing. Topics vary yearly. In fall 2019, I had the opportunity and pleasure to teach this course and I chose the topic of *Design for social innovation*. Design for social innovation was chosen as the topic for the year not only because it brings together a variety of innovative contemporary design practices and experiences, but also and mainly because it represents a relevant pivotal point within the design field. Since the beginning of this century, discussions concerning design for social innovation have led to the amplification of the contribution by design to our society, the re-interpretation and better understanding of the essence and qualities of design, and the exploration of new methodological territories and fields for design practice. The emerging worldwide interest for these new possibilities, and the subsequent explorations and experimentations, have, over time, allowed for the emergence of crucial related discussions, such as an in-depth reflection on logic behind Western design, how it informs deign processes and outputs, and the need for processes that are more representative of plural possibilities of being, which could strengthen the ethical qualities of design practice.

I wanted the students to gain knowledge on the origin of discussions concerning design for social innovation as well as on current debates about it, to develop their own understanding of the topic, and then to draw a connection with their design practice – that is, to understand the implications that this concept brings to their way of being designers.

Based on this background, I structured the course into five main stages: (1) gathering a broad understanding of the current design approaches for social change; (2) collective exploration on what social innovation means and its main features - what design for social innovation stands for, and the socio-cultural framework within which the concepts emerged; (3) collective exploration and reflection on what designing for social innovation might mean in Canada and Ottawa – through debates and practical exercises; (4) exploration on how design for social innovation might influence their own way (and vision) of being a designer, and on how it can enrich their practice; (5) finally, framing their own understanding of design for social innovation within the current discourse on design for social innovation.

All this happened through not only readings and debates, but also through practical exercises of investigation and of speculation of possibilities for design and for our societies. Among themselves, students engaged with indigenous worldviews and attempted to explore their own environment through them, with the aim of re-interpreting existing relationships - between human actors, as well as between human and non-human actors- and thinking about different ways for designing them in the future. They also engaged with their territory looking for signs of social innovations and, using them as a starting point, they designed future scenarios for Ottawa. Later, each one of them explored a topic and area of their interest – within this framework - and wrote a paper in which they showed their understanding of the potential contribution of design for social innovation in that area. In doing this, they engaged with current scholars' work.

Throughout the course they had the opportunity to discuss their papers and understanding of design for social innovation with design experts: Lois Frankel and Chantal Trudel, associate professors of the School of Industrial Design at Carleton University, and Gustavo

Severo de Borba, professor of the Graduate Program in Strategic Design at Universidade do Vale do Rio dos Sinos (Brazil).

Finally, they presented their papers in the *2019 Annual Seminar Celebration*: an event held yearly at the School of Industrial Design open to the students of the school, to design professionals and to other community experts.

This book is a compilation of the papers they wrote. The papers here presented clearly show a variety of ways in which students interpreted what design for social innovation can be and its relevance for their design practice: design for health and wellbeing, design and communities, social entrepreneurship, local businesses and revitalization of the social fabric, industry 4.0, maker movements, inclusivity and situatedness of design practice, Indigenous worldviews and human-non-human relationships, design and gender, design and education, social media, and urban context, to name but a few.

The papers are preceded by some reflections on students' works and on the course provided by Gustavo Severo de Borba, guest speaker at the Annual Seminar Celebration, and by the design experts who participated in the seminar discussions.

In a moment in which we are facing incommensurable challenges, and in which all professionals are called upon to contribute to addressing relevant worldwide issues such as climate change, pandemics, growing inequalities, dissolution of social skills and weakening of the social fabric, courses such as this one are crucial to encouraging discussion among future professionals on ethics within design practice, and on designers' responsibility towards our society. It also stimulates exploring and imagining together possibilities for plural and democratic futures, to understand the connection between global and local, and to engage with the latter by discovering and exploring designers' contribution for their own context.

It gives students and instructors the possibility to think about design, to talk about design and to advance design. This book was possible thanks to each student's effort and contribution.

It would also not have been possible without the support of Bjarki Hallgrimsson, the director of the School of Industrial Design, Anna Kim, school administrator, and Tammy Tracey, graduate and administrative assistant, and all my colleagues.

Finally, I would like to give special thanks to Lois Frankel, Chantal Trudel and Gustavo Severo de Borba, who dedicated their time to listening to students and discussing design with them.

Chiara Del Gaudio
Ottawa, November 2020

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What can I Learn from Students?

Reflections from Gustavo Severo de Borba, guest speaker at the Annual Seminar Celebration

For the last 20 years, I have been working at a Jesuit University as a professor and I have always tried to change and improve the way I teach, and to influence the way my colleagues teach. For the last 10 years, I worked as the head of undergraduate studies, and I had a thousand professors and 25000 students under my leadership. During this period, we have been redesigning classrooms and curricula to improve how professors teach. However, we are still trying to change the way professors teach.

Usually, professors plan their courses with the aim of sharing their knowledge with their students, giving them all relevant information, and expecting that they will get it, all in the same way. They also plan tests, to be sure that they have learnt.

I think this has to change if we want to change our future: we need to understand our students' ideas, their context, and their motivations when proposing something to them. When we fail to do this our classes are: one size fits all. The same for everyone.

How can we learn from students?

When they talk about their ideas, WE learn. When we learn, we can change the way we teach. I think this is the only way to change our future.

In the same way, when we talk about social innovation, we are talking about a better future for everyone. When we talk about design for social innovation, we are talking about a design approach that deals with complexity and wicked problems collectively, and that collectively changes our society. We must reflect on this as professors, as students and as designers.

So, what did I learn from students through their voices here?

I learned that we have to keep alive our desire to change the world, and that in order to do this we have to remember how we used to think, act and behave in the past. I learnt that we always have to try to answer one question: what am I doing to go in the direction of my ideas and dreams?

In the song, "People need a melody", the band, The Head and the Heart, says: "People need a melody to open their eyes / Like a key to a memory frozen in time".

Design, like music, can help people to open their eyes, and make the world a better place for all.

Gustavo Severo de Borba

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Reflections From the Seminar Design Experts

Lois Frankel
It was a pleasure to attend this year's IDES 4001 seminar paper presentations about design, social innovation, and design for social innovation. All the speakers were very interested in their topics – even passionate. We need to be inspired by that kind of passion to ensure that design and social innovation can make a positive mark on the world in these complex times. We may wonder whether we designers can make a difference big enough to turn things around. We may imagine that we can offer only a few small voices in the sea of complexity that threatens to upset our world. In that small classroom, presentation after presentation, it became obvious to me that it's time to pay attention and these students are ready to help us do just that. Thank you for sharing your ideas with us.

Gustavo Severo de Borba
I had the opportunity to listen to 24 students, with different perspectives, thoughts, and ideas about design and social innovation. I learned a lot with each one of them, about the subject matter, but even more about their interests and passions. The students overcame the obstacles related to writing one of their first papers and presenting something important to them: co-design for people with dementia, mobility, traditional communities, and much more.
They did it with passion, trying to show us, in 5 minutes, how critical their perspective is. They shared their ideas, and we heard their voices. We, as professors, need to change the way we connect to students. Learning about all of them is a small step in that direction. Giving voice to students is probably the only way to start this change.

Chantal Trudel
I was honoured to be invited as a guest panelist in Professor Chiara Del Gaudio's 4th-year undergraduate Industrial Design seminar focused on social innovation - this work is so important for moving upstream, to the front end of discussions on design. The variety of presenters through their papers and public presentations examined a series of topics that fostered momentum in considering underserved and highly complex areas of design such as social capital, public health and wellness, and global or cross-cultural design. The sincerity and personal motivations that came through in their work and the ensuing, engaging discussions give me hope that these are the emerging and exciting areas of sustainable growth in our profession that will be led by this new generation of designers.

AAKRIST DONGOL

Social Innovation of the Breath

RESPIRATION - CHRONIC DISEASE - PERFORMANCE - HOLISTIC HEALTHCARE - AUTONOMOUS HEALTHCARE

In 2014, researchers discovered that human beings can consciously control their autonomic nervous system and immune system by using a breathing technique (Kox et al., 2014). Prior to this study, the scientific community had believed it impossible to voluntarily control the nervous system (Kox et al., 2014). This study has successfully shattered that paradigm of thought and proved humans can in fact alter their biology at will. The applications of these findings can empower society in taking care of their health and promote a healthcare system that supports the autonomy of the population's wellbeing. This paper will explore one of the pillars utilized in the study – breathing – and the role of design in facilitating the emergence of an autonomous healthcare system.

Respiration and the Chronic Disease Epidemic

Today, 45% of the American population suffer from at least one chronic disease – that is approximately 133 million people (Raghupathi & Raghupathi, 2018). Chronic disease can be defined as "a physical or mental health condition lasting longer than one year that causes functional restrictions or requires ongoing monitoring or treatment" (Raghupathi & Raghupathi, 2018, p. 1). It is estimated that a single US citizen spends $5,300 each year on their chronic condition, accounting for about 75% of total healthcare spending in the US (Raghupathi & Raghupathi, 2018).

The negligence of proper breathing mechanics has proved detrimental to the health of society as death rates from disease seem to increase each year – two of the leading causes being cardiovascular disease and respiratory disease (Ritchie & Roser, 2018). The first step in reversing the ill health of society is right under our noses. One must break the habit of poor breathing patterns and develop proper breathing mechanics if one wishes to prevent or reverse diseased states.

Konstantin Buteyko, a doctor in the World War 2 era, observed the breathing rate of his patients in relation to the severity of their illnesses. He later made a correlation between breathing rate and the severity of his patient's conditions – the more frequent their respiratory rate, the more severe their illness tended to be (Buteyko Breathing Association). To counter the negative effects of over-breathing, Dr. Buteyko began studying many esoteric eastern texts, and derived a method called the *Buteyko Breathing Technique* (Buteyko Breathing Association). The main principles behind this technique is to breathe strictly using the nose and to use the diaphragm to reduce the depth and frequency of respiration – less is more.

Science Behind Respiration

A study conducted by Kox et al. (2014) observed two groups of healthy male volunteers in which the intervention group underwent 10 days of prior training in breathwork, meditation and cold exposure, while the control group received no training. Both groups were administered the Escherichia coli endotoxin, however only the intervention group were permitted to use breathing techniques, while the control group were not (Kox et al., 2014). Results showed that the intervention group were able to mitigate the flu-like symptoms resulting from the endotoxin, whereas the control group did not. According to the authors, the methods used in this study may prove an effective treatment for autoimmune disease (Kox et al., 2014) and chronic disease, due to their association with inflammation (Paccione & Jacobsen, 2019). Patrick McKeown (2015) describes the many benefits of nasal breathing and its applications in *The Oxygen Advantage*.

Nasal breathing protects the lungs from harmful pathogens and increases arterial oxygen uptake to help regulate pulmonary function (McKeown, 2015). These principles benefit not only diseased persons but can also aid healthy individuals. Individuals can mimic high altitude training and prepare for ascent to high altitudes by using breathing techniques outlined in *The Oxygen Advantage* (McKeown, 2015). Proper breathing mechanics will not only reduce the risk for disease, but also enhance mental and physical capabilities for its practitioners.

Dialogue Precedes Design

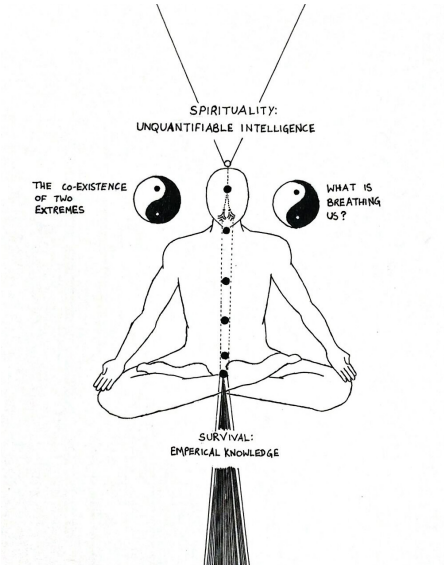
Social innovation can be defined as

> new solutions (products, services, models, markets, processes etc.) that simultaneously meet a social need (more effectively than existing solutions) and lead to new or improved capabilities and relationships and better use of assets and resources. In other words, social innovations are both good for society and enhance society's capacity to act. (The Young Foundation, 2012, p. 18).

Considering the significance of breathing principles discussed in this paper, individuals inherently possess the tools required to enhance their capacities to both heal and perform optimally. However, the lack of awareness and willingness to practise these breathing principles prevents society from improving their wellbeing. Therefore, introducing publics to proper breathing principles and facilitating environments that promote the practice of these principles are necessary to engage the inner healing capability of human beings. To combat the chronic disease epidemic of today, design concepts may play a crucial role in accelerating the population's rate of adoption of breathing principles. To make a scalable impact, designers must promote strategic dialogue, which is known as "a constant factor in the design process in which designers align with different actors for new ways of interacting and producing value within a community and its context" (Huybrechts et al., 2016, p. 101). This framework will allow designers to create value for given actors by tailoring breathing techniques to certain needs and interests. This will incentivize the population to adopt breathing principles willingly, thus at a more rapid rate.

XPT (a high-performance training organization) engages in a strategic dialogue between the athletic community and the scientific community to innovate novel training methods to optimize performance and longevity. By exploring various training modalities and the latest scientific research (potential interaction for actors), XPT can incorporate this knowledge into practices and workshops that educate clients in enhancing their performance, supporting recovery and increasing longevity (value produced). Through this process, XPT has created *Performance Breathing*™ exercises to improve cognitive and physical capacity, stress resilience and recovery to aid in overall performance (Hamilton, 2019). Due to the necessity of breathing, the principles naturally transfer over to breathing practice in the everyday life of its clients and can be used to regulate one's own physiology and health autonomously outside of training purposes.

In a world of technological abundance and the chronic disease epidemic, modern science is beginning to understand the powerful effects that a mundane activity – breathing – has on the human body. This wisdom remains esoteric however, which denies mainstream society of the knowledge and awareness required to reap its tremendous benefits to counter the detriments of the current healthcare system. Strategic dialogue is critical in curating and spreading awareness of this subject because the disparity in knowledge between experts and the average person regarding breathing principles is vast. However, even with the awareness of this knowledge, the population is generally reluctant to adopt new behaviours unless there is a clear incentive to do so. By aligning with various actors, designers will be able to produce value for their community by tailoring specialized breathing methods to their respective needs. Designing infrastructures that facilitate and incentivize the adoption of breathing principles will accelerate the rate at which society can autonomously govern its wellbeing by regulating one's breath.



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ALURA SUTHERLAND

Innovation Through Collaboration: Redefining Community

CO-HOUSING COMMUNITY - SUSTAINABLE - COLLABORATION - INNOVATION

This paper addresses design for social innovation with regards to designing for a more sustainable life. There are many ways in which people are making more conscious lifestyle decisions within the current systems, yet a greater impact would be seen if they committed to using design as a tool to change the existing systems. One avenue along which design is being implemented is within housing systems; considering the units we live in, who we live with, where we live, what we have in our homes and who as access to them. An example of an alternative housing model that is emerging is co-housing, which is a community-based housing model that allows for people to live alongside each other and to share resources, while still maintaining their privacy within the confines of their own home (Hurst, 2018). Due to this sharing model, people living in co-housing communities have a reduced ecological footprint compared to those living in mainstream housing models. Research shows that these communities use less energy, own fewer cars, and consume less material goods as a result of their sharing principles (Stratmann et al., 2013). A unique quality of co-housing is that its "residents participate in the planning, design, ongoing management and maintenance of their community" (Canadian Cohousing Network, 2019, para.3). These collaborative and participatory characteristics raise the question of whether co-housing allows for community members and designers to cultivate a relationship that helps them move towards the overarching goal of a sustainable lifestyle.

Design for Social Innovation as Seen in Co-housing

Social innovation has been defined in many ways. For the sake of this paper, we will move forward with the understanding that social innovation consists of

> new solutions that simultaneously meet a social need and lead to new or improved capabilities and relationships and better use of assets and resources. In other words, social innovations are both good for society and enhance society's capacity to act (The Young Foundation, 2012, p. 18).

Innovation differs from mere improvement: where improvement implies incremental change, innovation involves a radical shift in people's values (Mulgan et al., 2007). The co-housing model evokes these shifts by challenging mainstream values of what a home offers its dwellers, and by redefining what community means.

To set the scene, a typical co-housing community involves residents owning their own homes or housing units which surround the *common house*, which is arguably the defining feature of these communities (Boyer, 2014). This space is a resource of shared amenities which includes a kitchen and dining room along with a variety of other facilities such as guest rooms, home office, workshops, laundry machines, children's playroom, and so on (Boyer, 2014). Beyond access to these shared, tangible resources, co-housing provides many social benefits. The co-housing model rejects the notion that community is simply a group of people who live in close proximity with one another (Oxford Learner's Dictionary). It allows for its residents to reframe the concept of community as an environment that evokes trust and reliance (Stratmann et al., 2013). Its members tend to have more "developed social sensitivities in terms of understanding and acceptance towards others" (Stratmann et al., 2013, p. 37). According to Stratmann et al. (2013), this level of empathy is an "underrated value in our society but highly important for human interaction" (p. 37). Through the review of a case study, examples of innovation and design

opportunities within the co-housing model are presented.

The case of *De Kersentuin – Sustainable Housing and Living*

A case study titled *De Kersentuin – Sustainable Housing and Living* was undertaken by researchers affiliated with Eindhoven University of Technology in 2007 (Ouwenland et al., 2007). This referenced paper serves as the main source of information for the case used in this section. The study focuses on a specific co-housing community, known as De Kersentuin, and how community can provide the necessary conditions to foster environmentally conscious lifestyles. De Kersentuin is located in the Netherlands and has been described as environmentally, socially and economically sustainable. The emergence of this community was a result of a group of people who took it upon themselves to create environmentally friendly living spaces, which they felt would never be provided by the state. After overcoming various challenges, their vision was realized in 2004, and is now an active neighbourhood consisting of 94 buildings and is considered to be in a stage of maturity within the development process.

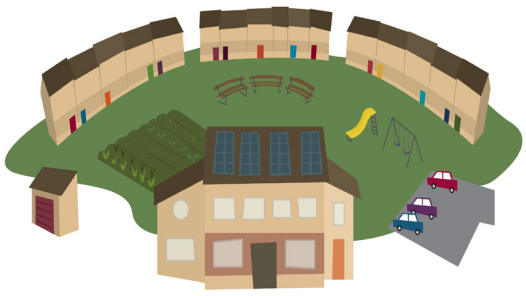
Reflecting on this study, the researchers identified sustainable benefits offered by this housing model, which they categorized in three broad groups: society, environment, and economy. It was found that within the social realm, De Kersentuin was home to a diverse population, and hosted many activities that brought and kept people together, contributing to their feeling of safety. The level of collaboration resulted in the output of many innovative initiatives and had the residents feeling as if they were part of a greater whole. Furthermore, the environmental benefits of this community included the efficient use of resources, which were shared and consistently utilized. Moreover, the inhabitants relied on a car-sharing project and used eco-friendly laundry machines, solar energy, rainwater for domestic applications, as well as growing some of their own food in community gardens. Finally, the community had many economic implications, the major benefit being the amount of money saved from sharing amenities (Ouwenland et al., 2007).

Discussion

Across many examples and cases of co-housing communities, residents, and researchers alike express that the desired environment of trust and mutual support does not automatically manifest itself upon moving to a co-housing community. It is one that must be developed through intentional efforts from all of its members starting with the early planning stages, recognizing that being a community member is not a passive role; rather one of action. Meroni (2007) reaffirms the value of active community members when she speaks of creative communities and their ability to "introduce new solutions that bring individual interests into line with social and environmental interests, which means that they have a high chance of becoming authentically sustainable solutions" (p. 14).

Since the co-housing process is collaborative by nature, there is an opportunity for designers to use their unique skill set in order to harness the creativity emanating from community members and to help foster a collaborative environment that allows for these ideas to evolve into realities. Meroni (2007) sees designers' role in this context as using their expertise and professional network to create effective communication systems that "recognize, reinforce and transmit, in an adequate manner, the ideas and solutions generated at a social level" (p. 14). Their contribution would increase the potential of large-scale dissemination and implementation of these grassroot initiatives. Furthermore, designers' ability of visualization would aid effective communication amongst collaborative members. In addition, design professionals would be able to encourage collaborators to consider both physical and psychological human factors that may influence the experience of a living space and the likelihood of people adopting the co-housing model.

In conclusion, there are benefits for co-housing communities to invite designers into their creative process. Meroni (2007) suggests that this functional relationship will only be successful when professional designers see themselves as "social actors" (p. 14) or "solution providers" (p. 15) and are able to recognize that they do not hold a monopoly on the practice of design. While in the process of answering one question, another question has emerged: How can designers gracefully remove themselves from a given community, after working so closely with its residents during the development phase, without disrupting the social fabric that everyone involved has worked so hard to cultivate?



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ANDRES VASQUEZ VALIENTE

How Social Innovation Hubs Impact Start-ups

SOCIAL INNOVATION - INNOVATION HUB - START-UP - PHYSICAL SPACES

Social Innovation, Innovation and Start-ups

An increase in investment in start-up companies is important as it can have a beneficial impact on their respective local economies. Start-ups have a positive impact on macroeconomic well-being by providing a surplus of jobs to their nation (Dilger, 2018). According to the financial journalist, Amy Fontanelle (2019), "A start-up is a young company founded by one or more entrepreneurs to develop a unique product or service and bring it to market." (para. 1) Social innovation can be broadly defined as:

> innovation in meeting social needs of, or delivering social benefits to, communities - the creation of new products, services, organizational structures or activities that are 'better' or 'more effective' than traditional public sector, philanthropic or market-reliant approaches in responding to social exclusion (Moulaert et al., 2013, p. 1).

In recent years, innovation hubs have increased in popularity due to the competitive advantages a firm can achieve through participation in this social innovation. Innovation hubs provide a co-working space that allows for companies to have access to tools and infrastructure that aim to help young start-ups thrive. An innovation hub "works as a catalyst of ideas, an incubator of new initiatives and tangible demonstration that new economic models and ways of living are viable and could be desirable" (Manzini, 2015, p. 199). It is a type of organizational structure dedicated to innovative projects (O'Hare et al., 2008). This paper will explore how the physical, social and knowledge infrastructure provided by social innovation hubs affects the development of new creative businesses.

The end-users, in this case, are fledgling business ventures otherwise known as start-ups. With start-ups having no history or profit to show, investments in start-ups are very risky (Fontinelle, 2019). Based on this, it is evident that one of the main challenges is to prove the validity of the concept proposed by the proprietors of the company. Proving validity to potential investors is crucial as the success in overcoming this challenge will mean a greater amount of revenue to be put into developing a concept, whether it be a physical product, phone application, consumer electronics, for example. In fact, with limited financial and structural resources, it becomes even more challenging to validate a concept. To positively influence innovation, the design of a space should bear four key attributes in mind: a time and place to engage in creative thinking, technology to facilitate the process and human facilitation (Magadley & Birdi, 2009). These spaces are designed in a manner that nourishes the innovation needed for start-ups to be competitively advantageous. The following section will explore how the design of a Social Innovation affects the development of a company.

Centre for Social Innovation and its Impact

The *Centre for Social Innovation* (CSI) in Toronto, Canada is a company that provides infrastructure to companies in need of access to tools and spaces needed for business development. The company has three locations in Toronto and one in New York City. According to the CSI website, the benefits of being a member of CSI include having access to the spaces that are part of its infrastructure. The spaces come equipped with high-speed internet, meeting rooms, photocopy and fax machines and other tools which may be necessary for members to develop their own business. The design of meeting room 4, showcased on their website (Centre for Social Innovation, n.d.), at

the Annex Location in Toronto will be analyzed here to understand how effective it is in fostering innovation through its design.

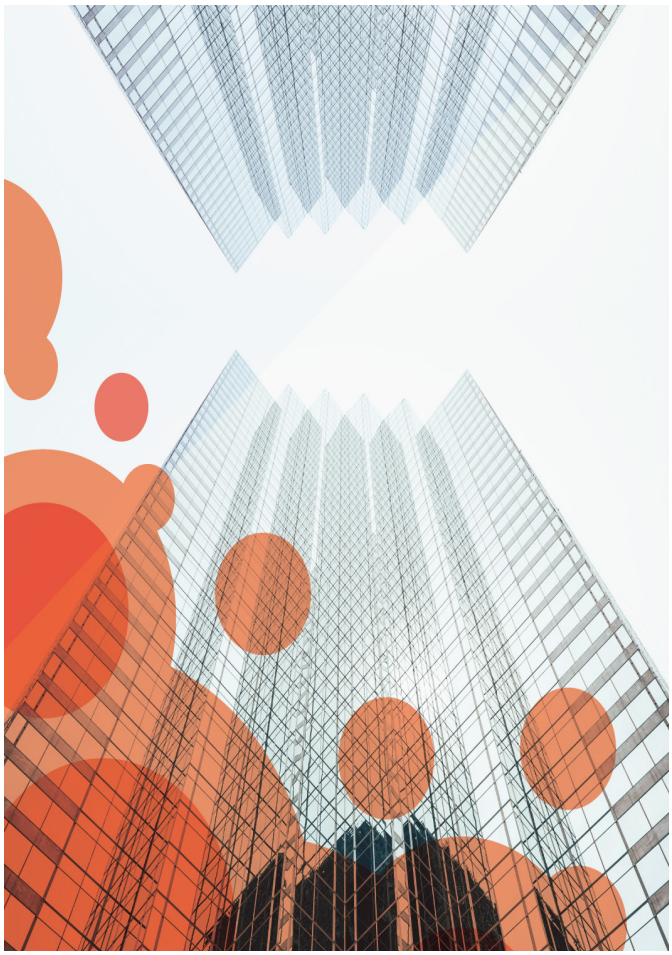
The room is spacious and has a large amount of natural light. It is also equipped with a projector screen and a white board. Room 4 provided by CSI is able to meet these requirements because:

1) It is an infrastructure (place) that makes it possible to have intended meeting and working spaces at a specific time.

2) The centre has the technology available to foster the ambitions of the company by providing basic supplies such as a printing machine, a kitchen, Wi-Fi, furniture, and a white board to illustrate ideas to others. Apart from the office supplies, the Centre for Social Innovation has a tool library where people may rent desired tools, which are supplied through donation by people who no longer use them.

3) The design of the rooms is human-centred and optimized for human use. These rooms have furniture chosen that allows easy communication between the users. This can be seen through the orientation of the table centred in the middle of the room with all the chairs facing inward to maximize interaction between the users within the room.

A firm in the early development phases is at a crucial point of its business venture. Entrepreneurs are learning the fundamental lessons and challenges, such as proving validation to investors, which will later define their process of executing their business proposition. Innovation hubs can provide a space that allows for this learning process to be ever more effective. For a space to foster innovation, it needs to have the four attributes of a time and place for creative thinking, complementing available technology and, be human centred. As shown through the case study of the Centre for Social Innovation in Toronto, this innovation hub has proven to be beneficial for start-ups.



"To positively influence innovation, the design of a space should bear four key attributes in mind: a time and place to engage in creative thinking, technology to facilitate the process and human facilitation."

(Magadley & Birdi, 2009)

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BASHIR SAIDI

Design Thinking for Promoting Social Innovation in Small Businesses

DESIGN THINKING - SOCIAL INNOVATION - SMALL BUSINESSES

Most businesses have monetary goals. In other words, the main goals of people who intend to open a new business are mostly focused on making profits out of that business. However, today people are more concerned with making a positive impact on the planet than making more money (Fox, 2016). Therefore, in order for a business to thrive in today's economy, it would be best for businesses to be socially, culturally or environmentally sustainable. As such, what are the possible ways and processes according to which a business model can work within such frameworks? This is where the notions of design thinking and social innovation come in. What are they and how can small socio-culturally or environmentally sustainable businesses profit from them? This paper aims to investigate the contribution of design thinking in sustaining social innovation in small businesses. First, we briefly describe what design thinking and social innovation are and second, we try to prove that design thinking is the best possible way for promoting social innovation in small businesses.

Design Thinking and Social Innovation

Tim Brown, CEO of Innovation Design Engineering Organization (IDEO), defines *design thinking* as a "human-centred approach to innovation that draws from the designer's toolkit to integrate people's needs, technology possibilities, and business success" requirements (Brown, n.d.). According to this definition, design thinking is not only a tool for designers, but it can be applied in any field and can be learned by anyone. One of the fine things in learning design thinking is that it teaches people how to empathize with the user. Moreover, it is a human-centred approach that promotes an iterative process where designers carry out the design process with the help of the various stakeholders involved (Leverenz, 2014). The idea that users can be involved in the design process of a business model is a central purpose of this paper because it helps connect the idea of design thinking to social innovation. One of the most comprehensive definitions of social innovation comes from Jegou and Manzini, who define social innovation as

> changes in the way individuals or communities act to solve a problem or to generate new opportunities. These innovations are driven more by changes in behaviour than by changes in technology or the market and they typically emerge from bottom-up rather than top-down processes (Jégou & Manzini, 2008, p.29).

According to this definition, we notice the relevance of the user. These authors no longer consider users as a consumer but as a central actor of the development process itself.

Carlington Booch

The example described here is taken from the Centre for Social Enterprise Development (CSED) website (Murr, 2019) and presented here to illustrate social innovation in small businesses. Carlington Booch is a social enterprise that is located in Ottawa, Canada. The company brews small-batch kombucha (fermented tea) to help fight addiction in Ottawa. Its goal is to reinvigorate the community by changing the way people live to create healthier people and healthier communities. It provides employment and volunteer opportunities for people coming out of addiction treatment centres. They also donate a portion of bottles sold to fight addiction in the community. According to the business owner, he has gone through drug addiction himself. The business was built with the help of CSED in Ottawa. The owner created

a change in order to solve a problem in society and generate new opportunities for people coming out of addiction. This change, itself contributes to the understanding that social innovation is based on individuals who act to solve a problem.

What we learn from studying Carlington Booch is that: a) continuous learning from the user's past experience is important in adopting design thinking to promote social innovation in small businesses. The owner (the user) of Carlington Booch was an ex-drug addict. He knew what it was like to be an addict when he had an idea about starting a business to help eradicate drug addiction. His past experience helped CSED to come up with a business idea. Since design thinking revolves around user-centredness, giving the user the opportunity to express his or her ideas and feelings about a problem will help designers come up with innovative social ideas; b) business owners who have learned about design thinking can understand the user needs better because they have learned how to empathize. This helps to create a business that is not only profitable but socially sustainable. In order to achieve these understandings, two activities were performed: the study of CSED development phases for social enterprises such as visions for creating a business, idea generation, feasibility studies, business planning and performance measurement; and then the comparison of those development phases to design thinking phases such as define, ideate, prototype and test. However, more research and studies need to be done about the implementation of CSED principles when helping locals to create social enterprises in Ottawa.

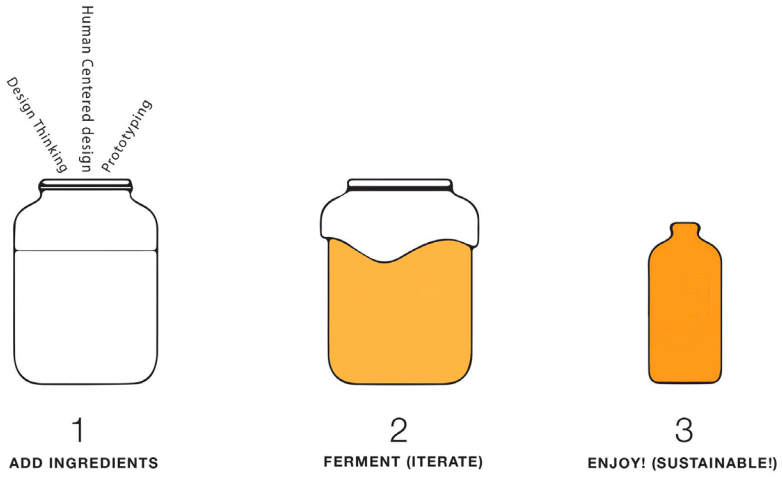

Illustration: The above illustration is an anology between process of brewing kombucha and creating a sustainable business.

"Business owners who have learned about design thinking can understand the user needs better because they have learned how to empathize."

References included at the end of the document

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CALLUM GONCALVES

Making a Difference: How the Maker Movement is Redefinig Social Roles

MAKER MOVEMENT - PROSUMERISM - DECENTRALIZED PRODUCTION - INNOVATION

In 2005, Dale Dougherty founded *Make* magazine, a publication promoting the exploration and development of new skills as well as the building of communities of likeminded people (Dougherty, 2012) who he believed would "shape the next big wave of technology" (Dougherty, 2016, p.XII). As a result, Dougherty is often regarded as the father of *The Maker Movement* (TMM) (Dougherty, 2016). TMM is a social movement based around an evolving culture of innovating, creating, and designing nearly anything from robotics to textiles (Peppler & Bender, 2013). Although it has influenced many different industries, it is unified by the open exploration of creative ideas (Peppler & Bender, 2013). This paper looks to explore the ways in which the movement is creating innovation at a systematic level by redefining traditional social roles and relationships between consumers and producers as a result of modern technologies.

Technological Advances and TMM

The emergence and improvement of additive manufacturing technologies have allowed for new forms of rapid prototyping and small-scale manufacturing (Vayre et al., 2012). Although these technologies, such as 3-D printing, are relatively new, the field is rapidly maturing, and its respective technologies are becoming more accessible at affordable costs (Kotler, 2010). The internet is another technology which has continually grown since its inception. Since 1990, the rise of the internet has allowed for the emergence of a new environment for participatory information (Bruns, 2014). This new environment has opened avenues for individuals to participate in the creation and exchange of information in a much more productive and wide-spread way than ever before (Bruns, 2014).

Although we have seen societal changes as a result of these technologies, such as the globalized democratization of information from the internet, it should be noted that technology rarely causes change by itself (Bruns, 2014). However, it can facilitate change and promote innovation in combination with certain contextual factors (Bruns, 2014). An example of a circumstance in which these technologies promote innovation through creation and design is TMM (Peppler & Bender, 2013). This movement has been a driving force for the growth of a culture of creating (Peppler & Bender, 2013). It promotes the idea that end users can be the makers of things, not just consumers of things (Obama, 2009). The mission of this movement is about empowering people who traditionally seek jobs in creative or STEM (science, technology, engineering, mathematics) fields to create their own industries and occupations based on the evolving needs of a rapidly changing society (Peppler & Bender, 2013). Even though TMM is a widespread movement, it is also local with physical locations, called *makerspaces* all over the world (Oliver, 2016). These spaces are a place which make use of innovative technologies such as 3-D printing as well as shared resources to promote the development of technical projects with support from the maker community, which, thanks to the internet, has become a global collaborative community (Oliver, 2016). The movement also includes the international *maker faire*, which is an event where makers can bring their creations and share them among the maker community, raising exposure to a broad audience (Dougherty, 2012). In the past, small communities based around a shared interest were common, but due to the internet, the TMM community shares an unprecedented level of

interconnectedness (Dougherty, 2012). With the growth of the aforementioned technologies, such as the internet and 3-D printing, the size of TMM community is steadily increasing (Peppler & Bender, 2013).

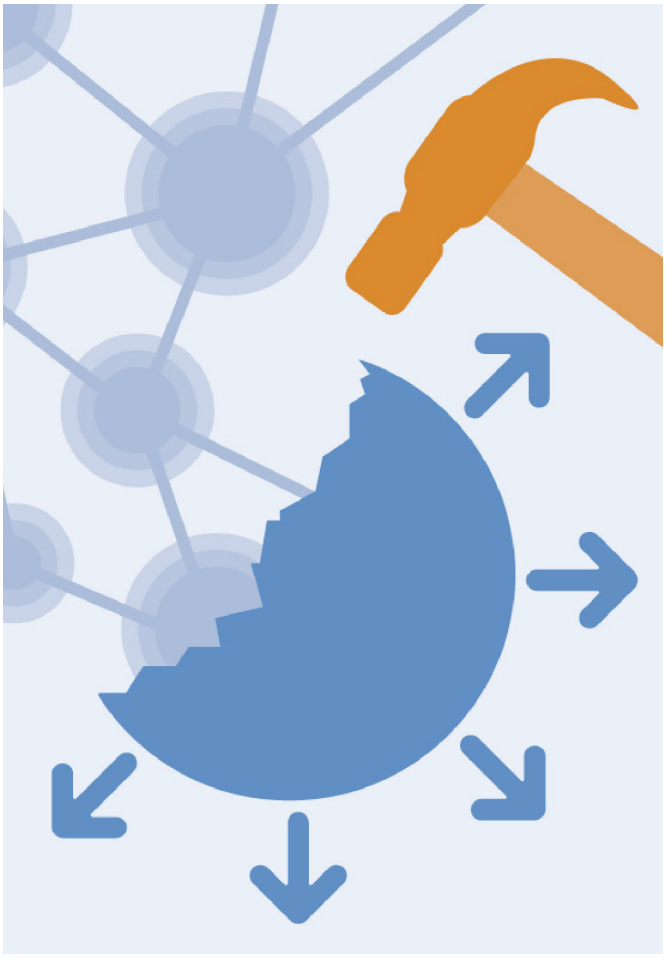
Impacts of TMM

TMM is promoting the concept of individuals taking on the social role of a prosumer, which is an individual who can produce some of the goods they consume (Kotler, 2010). This change unifies production and consumption in one person, changing the traditional structure of the producer-consumer social model (Peppler & Bender, 2013). As society moves forward into a post-industrial age, it is expected that the number of pure consumers will decline and become replaced by prosumers (Kotler, 2010). The change from strict consumerism towards personal fabrication is also viewed as a foundation for a more prosperous economy, because TMM empowers people to create their own industries and occupations to respond to the needs of society (Peppler & Bender, 2013). As a result of TMM expanding and more makers joining the community, distributed and decentralized production has been seen replacing traditional mass production in many instances (Unterfrauner et al., 2017). Traditional mass producers have a centralized production and complex supply chain for distribution while smaller, decentralized production can be locally managed with faster responses to changing demands resulting in significantly less transportation of products and resources (Unterfrauner et al., 2017). Mass production was made possible through the division of expertise and labour, which is contrasted by the maker movement which aims to marry these two factors (Unterfrauner et al., 2017). As TMM continues to grow and the division between expertise and labour lessens, it is expected that the decentralized production of goods will become more common (Unterfrauner et al., 2017).

Relevance to Social Innovation

In 2015, Ezio Manzini stated: "We define social innovation as new ideas that simultaneously meet social needs and create new social relationships or collaborations" (Manzini, 2015, p.11). If we consider TMM to be a new idea, to define the movement as social innovation means we must define the social needs it is addressing and the social relationships it is creating. Due to the vast differences between societies around the world, common social needs can be hard to agree upon. However, one problem which has the potential to negatively affect the entire world may be climate change. Therefore, it follows that one possible global social need is to combat climate change. One example of how TMM addresses this need is through the potential for decentralization of production. This may lead to reduced transportation of goods which in turn has the potential to reduce carbon emissions and wasted products. TMM also creates new social relationships through the promotion of *prosumerism*, changing the relationship between consumers and producers. Therefore, by Manzini's definition, the maker movement is a form of social innovation.

Creating systemic change in the world is difficult but through social innovation it is possible. One possible approach could be to focus on making people re-evaluate their interactions with the world in a way which promotes changing these interactions for the better. TMM has shown that it aims to change how consumers participate in consumer culture. As the movement grows, it promotes a change to decentralization, not by building more manufacturing facilities but by promoting the growth of individual ideas and businesses. People are powerful and have the power to create change. TMM understands this and will hopefully continue to promote individuals and their innovations.



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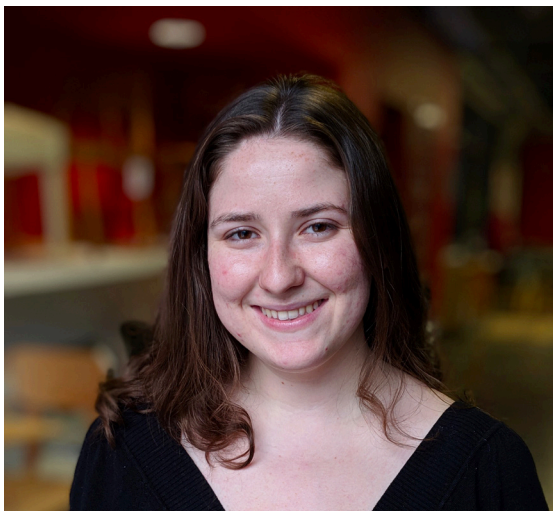
CATHERINE CAETANO-MACDONELL



The Design of Mobility in Resilient Communities

COMMUNITY RESILIENCE - ACCESSIBLE MOBILITY - SUSTAINABLE TRANSPORTATION DESIGN

One of the most important elements of community resilience is accessible mobility, which can be achieved through the design of sustainable transportation systems. Designers who have utilized research activities that are specific to design for social innovation have achieved better design outcomes, in terms of systems that are sustainable and functional. One example of better design outcomes is socially innovative communities, which are design systems that have contributions to creating resilience to current and future socio-environmental challenges. According to Desouza and Flanery (2013), urban resilience generally refers "to the ability to absorb, adapt and respond to changes in an urban system" (p. 89). In actual fact, according to Moraci et al., community resilience involves "contemporary planning, which uses smart tools on cities and urban settlements to administer and manage urban transformations to cope with climate change and the mitigation of environmental hazards" (2018, p. 5). The current environmental crisis has clearly showed that one of the most important elements of community resilience is accessible mobility, which is achieved through the design of sustainable transportation systems. Therefore, in this paper, the author will reflect on how accessible mobility can be designed and on the impact transportation system design projects have on community resilience.

Accessible Mobility

As stated above, the accessible mobility of resilient communities means better sustainable transportation system designs. In response to this, research has been witnessed globally for resilient urban transportation system design. Manzini and Mrithaa (2016) explained that sustainable resilient systems provide equitable access to services, reduce environmental damage, improve community connectivity, and bolster the local economy. A researcher of sustainable urbanism, Primož Medved, published a paper in 2017 that analyzed the design and development of two leading examples of sustainable neighbourhoods and community resilience in West Harbour (Sweden) and Vauban (Germany) through local development projects and sustainability initiatives. Medved (2017) describes the West Harbour and Vauban projects as, "experiments in urban sustainability … [that] could provide concrete answers to many challenges facing cities and society" (2017, p. 107). Some of the insights provided by the West Harbour and Vauban projects have been the identification of features of sustainable transportation systems, such as walkability, connectivity, and green transport (Medved, 2017). Cities that are designed to be walkable and interconnected improve their citizens' enjoyment of the space and contribute to physical and mental health while being environmentally beneficial (United Nations Department of Economic and Social Affairs, 2018). The sustainable transportation systems of Western Harbour and Vauban were initiated with the reduction of car dependency and developed with the vision of a lifestyle without a car (Medved, 2017). An important characteristic of sustainable transportation systems is access to public transportation and pedestrian-friendly street design (Opticos Design, 2015). The design of pedestrian-friendly streets features most services and amenities within a ten-minute walk from work or home, which ensures all individuals have access to all services without the need for a personal vehicle (Opticos Design, 2015). The impact that sustainable transportation systems designs have on cities is a reduction of environmental damage due to alternative mobility methods such as

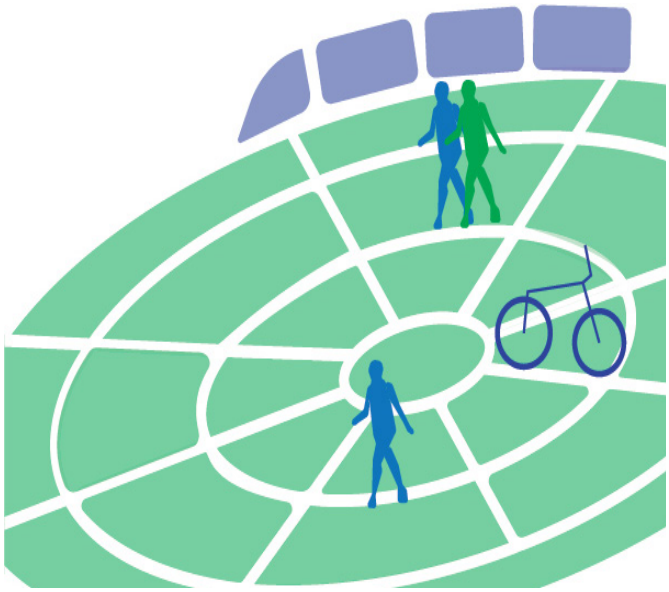
cycling initiatives, car-sharing systems, efficient public transport, and walking (Medved, 2017). In West Harbour and Vauban, community resilience has been improved through local sustainable transportation system design projects.

Manchester Research Study

To understand better the development of sustainable transportation systems we will look into a research study conducted in the Manchester neighbourhood in which researchers created strategies to inform sustainable and resilient future city planning. In Manchester, a low-density industrial Calgary district, there have been many design research projects for improving sustainability because the majority of the area's land was dedicated to automobile infrastructure and the district had a low-density population with a low quality of life (Keough & Ghitter, 2019). The research study conducted by Noel Keough and Geoff Ghitter (2019) demonstrated that the Manchester district is an industrial area that relied on automotive transportation and under-utilized its land-use potential. The researchers had the goal of redesigning the current district into a sustainable, low-carbon city one. The researchers explained that community members should participate in the design of their future systems, which was proved in the design process from the insightful findings that three rounds of participatory design with citizens generated. One of the main findings of this study was the identification of eight barriers and design mitigation strategies for the development of a more sustainable community, which Keough and Ghitter (2019) utilized to develop design concepts. At the end of the study, a conceptual urban design was developed for the Manchester district in 2060 featuring infrastructure developments and services that had the main characteristics of walkability, connectivity, and green transport (Keough & Ghitter, 2019).

Final Considerations

In conclusion, based on the common findings of the research studies on local design projects for resilient, sustainable communities in Canada and Europe, the first step for implementing a sustainable transportation system design is the reduction of car dependency. In both of the papers published by Medved (2017) and Keough and Ghitter (2019), the social needs of citizens were analyzed to design pedestrian-friendly streets with accessible public transportation. The sustainable communities, West Harbour and Vauban, analyzed by Medved (2017), which had been in development for many years, demonstrate that a community with a strong social connection is more sustainable and resilient. The development of an urban space dedicated to pedestrians instead of cars demonstrated that the citizens are the crucial focus. The case showed that sustainable transportation design systems should focus on the needs of the community members. This design focus on the users has fostered greater citizen connection and participation, which has enhanced their enjoyment of the community space (Keough & Ghitter, 2019, 2019). In the future, small projects should be implemented that develop these sustainable transportation concepts and generate momentum for resilient community design. Therefore, for community resilience design, sustainable transportation system designs require a split focus between the development of physical space and social practices.



"For community resilience design, sustainable transportation system designs require a split focus between the development of physical space and social practices."

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CHIMZURUOKE NEBO

Embracing Inclusivity in Design

DEPENDENT USER - INCLUSIVE DESIGN - REDUCTIVE SEDUCTION

The inclusion of dependent users in designing for their community has been a conversation that has gone on for a long time and is just starting to be taken seriously. In this paper, my definition of who is considered a dependent user is expanded on. The focus will be on how this user's design opinions are neglected by the design community. Designers and society are starting to see the benefit of including the perspective of the dependent user in the shaping of the community, but there is still some resistance in the process. The aim of this paper is to create an understanding as to why dependent users are not more involved in their community design process and why this should not be the case. It explains the reason for the resistance in the inclusive design process, the disadvantages of the lack of their inclusion in the process and the benefits of when they are involved in the process. An example of a design experience, in which community members have been neglected in a design process, will be employed to achieve the above aim. By discussing the effects of their exclusion and what could have been done differently, a better understanding of the benefits of an inclusive design is achieved. The importance of an inclusive design process emerges upon understanding the benefits it provides to the designer and the dependent user/community. The claim is that this paper will show that the reason for the lack of inclusion in the design process for dependent users could be "reductive seduction" (Martin, 2019, para. 6).

Reductive seduction is when a person is convinced that they have an easy fix to another community's problems. Designing for social innovation is a topic with multiple approaches and points of view. For the purpose of this paper, social innovation is a process that provokes social progress in a society, by providing solutions to tackle environmental or social issues. This paper focuses on understanding how, and to what extent, dependent users are included in their design process. Dependent users are users unable to design for themselves but who are in need of design help. An example of a dependent user, in context of this paper, would be a village in a economically-deprived, developing country, with a poor drainage system and no resources to design a better system.

The Case of TOMS *One for One*

The outcomes of TOMS *One for One* (Davenport, 2012), *play pump* ("Roundabout PlayPump", 2019) and *one laptop per child* programs (Wooster, 2018) are examples of design solutions provided to dependent users without including them in the process. They all failed initially and only some could be corrected. This paper will be using TOMS *One for One* program as an example to reflect on why dependent users are not more involved in the design process, as they should be.

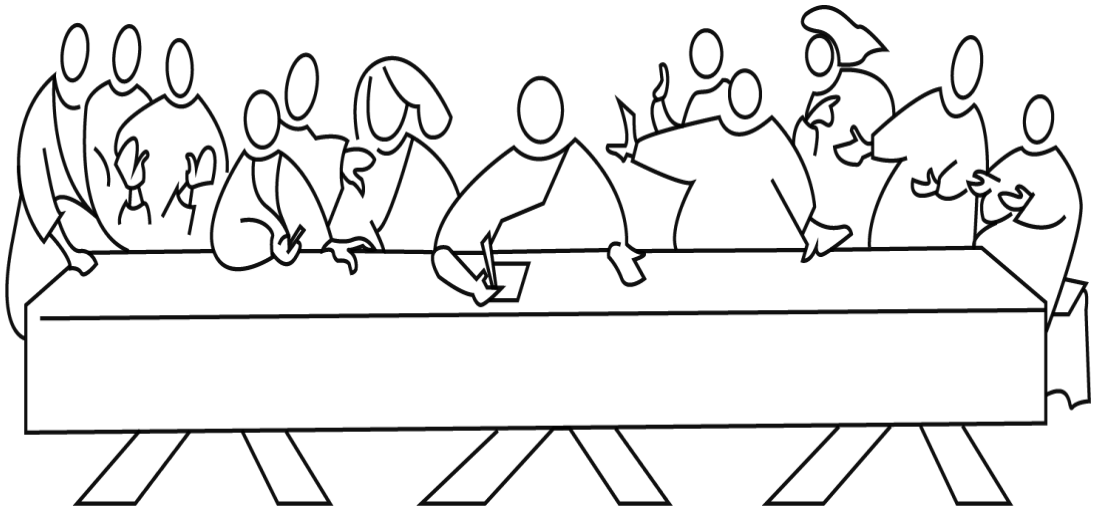
The TOMS *One for One* program is a program designed to provide kids in developing countries with a free shoe for each TOMS shoe that is purchased. TOMS, an American-based company that focuses on shoes, was created with the aim of providing kids in similar situation with a shoe (Zimmerman, 2009). For each TOM shoe purchased, a kid with similar circumstances as the kids in a village in Argentina, got a shoe. For this reason, it is known as the *One for One* model. The program, just like most of these programs, was perceived to have a positive impact at the beginning. It supplied about 35million pairs over 60 countries, but as stated earlier, it failed to fully understand the needs of the dependent community. On one hand, they successfully solved the lack of shoes in

these communities; on the other hand, they strengthened local poverty issue in the community by putting local entrepreneurs (shoemakers) out of business. Poverty is the underlying cause of the lack of shoes in this community. TOMS figured out that their initial solution had not accounted for the various users. When TOMS understood this, it dedicated more time into creating a full picture of who their users were and involved them in the process. Now TOMS invests in shoemakers in the community, by paying for the kids' shoes to be made by local shoemakers.

Discussion and Final Considerations

The TOMS *One for One* program described above, is an example in which designers based the design solution on what they presumed to be best, without involving the dependent users it concerned. This is the main resistance an inclusive design process faces. Most designers fall into the pattern of basing their knowledge on what they think is best for a dependent user according to their own experiences, because they have a higher standard of living, in comparison to these communities (Martin, 2019). TOMS did not take into account the perspective of the users and that was the main reason that their first attempt was not a success. TOMS designed a solution based on what they thought the problem to be. The issue with this is that a kid not having shoes was only a symptom of the problem. Working with dependent users (the parents of kids, kids and the community) in the design process would have made it clear that the reason for the kids not having shoes to protect their feet was due to parents not being able to afford the shoes. The right questions were never asked, because all the dependent users were not accounted for. TOMS was unable to grasp the whole picture of the design solution needed, thus their proposed solution was inappropriate. Introducing a foreign product into the community meant that the whole community was going to be affected by that product. Therefore, the rest of the community should have been considered as secondary dependent users (dependent users not affected directly by a design solution). As seen from the above example, a lack of inclusion leads to designers solving the wrong problems. This effect can be very disadvantageous to the designer and dependent user. It is a waste of time and resources to provide a solution that worsens the actual problem. In the case of the TOMS 'One for One' program, the shoes took away businesses, leading to a poorer economy. Including dependent users in their design process might seem exhausting and time consuming, but in the long run it actually saves the time of having to redesign the whole process. Not involving the dependent users in design intended for them will most likely fail.

This paper has clarified how not involving the dependent user can be disadvantageous to the designer. By solving the wrong problem, time and resources will be wasted. Lastly, it explains how inclusion benefits the dependent user by providing them with the right solutions and benefits the designers. With this, this paper has successfully highlighted disadvantages to excluding dependent users from the design process and the benefits of involving them in the design process. It also shows how the root cause for the exclusion of dependent users in the design process could be due to reductive seduction.



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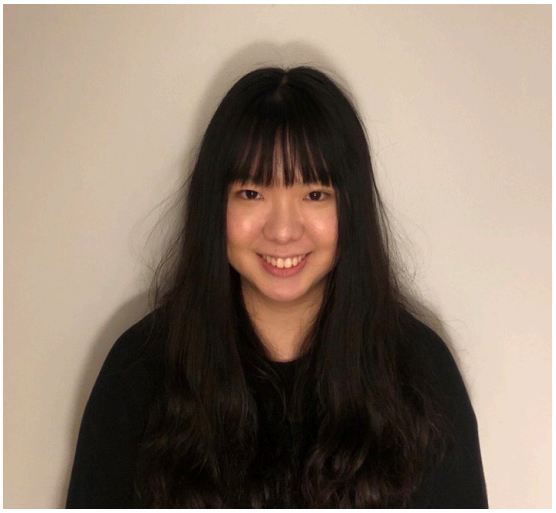
DENISE PONG



Designing Social Innovation in Sustainable Tourism

DESIGN - SOCIAL INNOVATION - SUSTAINABLE TOURISM

The concept of social innovation has, in recent years, gained and retained a lot of interest as a way to achieve both sustainable economic growth and social changes (Balamatsias, 2018). According to the *Global Sustainable Investment Review 2018*, sustainable and responsible investing have been growing every year. Thus, there is every reason to believe that the pace of social innovation will, if anything, accelerate in the coming years. Despite its rapid growth, social innovation has received limited attention in academic tourism literature (Mosedale & Voll, 2017). The aim of this paper on social innovation in tourism is, first, to provide a conceptual overview of social innovation in the context of improving sustainable tourism; and second, to explore ways designers can help achieve social innovation in tourism.

Design for Social Innovation

There is a wide gap between the scale of the problems we face and the scale of the solutions on offer (Mulgan, 2006). In the past, governments, non-profits and for-profit organizations have been working to address some of these issues by helping create jobs and addressing social issues, however, the traditional "tools of government policy on the one hand, and market solutions on the other, have proved to be inadequate" (Murray & Mulgan, 2010, p.3). The above dependence was generally not good enough for fostering sustainable growth, securing jobs, and simultaneously meeting social needs. Therefore, when people came to realize that the old ways of doing things no longer work (Urama & Acheampong, 2013), an interest in the concept of social innovation started. Innovating generally means introducing new products, process or business solutions which are not only new but also extremely distinctive or game changers (Kogabayev & Maziliauskas, 2017). Most of the time, innovation is associated with technological developments. Social innovation, on the other hand, is commonly viewed as a process of collaborative innovation, where the innovation process benefits from the newly created social relationships, which change social interactions and practices for the good of society (Mosedale & Voll, 2017). Social innovation is not a one-size-fits-all proposition and the values produced are not easily translated into quantifiable benefits. Social innovation brings more social justice and more empowerment which will make for a more dynamic and productive society (Hubert, 2011). Social innovation can emerge from both top-down and bottom-up processes, or a combination of the two. Top-down innovations are facilitated by external actors (experts, governments), while bottom-up innovations are driven by local people or communities (Manzini, 2014). The bottom-up perspective is more successful for social innovations at community level as it emerges to cope with day-to-day problems (Butkeviciene, 2009). "Traditionally, designers focused their attention on improving the look and functionality of products, [but] […] in recent years designers have broadened their approach, creating entire systems to deliver products and services" (Brown & Wyatt, 2010, para. 7). In design for social innovation, designers focus on society's most important challenges and complex social issues, such as reducing poverty and pollution, preventing illness, providing better sanitation and resolving much more critical social issues. Furthermore, social innovation designers are changing the way the world works: they tackle problems by creating new models, products, services and solutions that are characterized by a socially-oriented objective instead of predominantly commercial

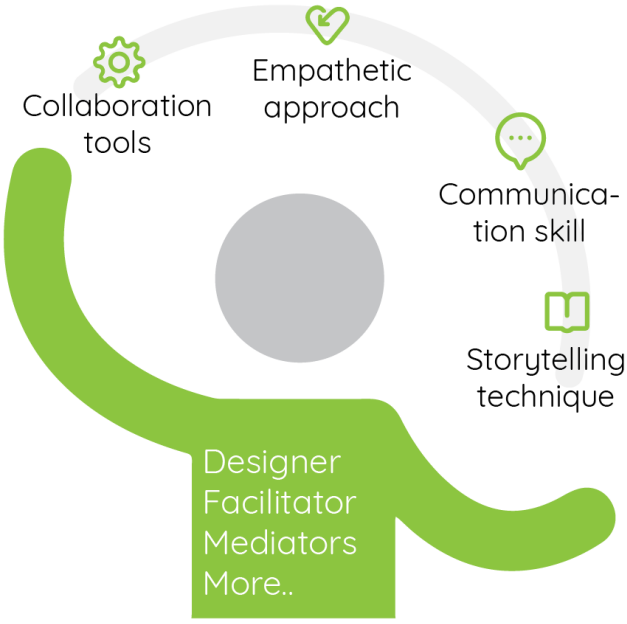
or consumer-oriented ends (Deserti et al., 2019). Proven design methods can be used to implement innovative solutions to address these complex social issues. In this regard, the *Open Book of Social Innovation* (Murray & Mulgan, 2010) identifies the following six stages that take ideas from inception to impact: 1. Prompts, inspirations and diagnoses, 2. Proposals and ideas, 3. Prototyping and pilots, 4. Sustaining, 5. Scaling and diffusion, 6. Systemic change. The book explores each of these stages in depth and describes some of the main methods used for each one. This framework will guide the designer through the familiar process of prototyping, piloting, tweaking and visualizing.

Sustainable Tourism

The tourism industry has for a long time been an important source of income for many regions and even for entire countries. This industry has experienced steady growth almost every year and international tourist arrivals were forecasted to exceed 1.8 billion by 2030 (Statista, 2018). Unfortunately, increasingly communities and local governments have attempted to heighten economic benefits with little regard for the social or environmental costs associated with tourism expansion (Allen et al., 2008). As a result, tourism is not without negatives consequences. These consequences include noise, polluting natural resources, erosion, displacement of population, social problems, endangerment of local species, and resentment by local residents. Learning about the impacts of tourism has led to sustainable tourism. The United Nation World Tourism Organization (UNWTO) defines sustainable tourism as: "Tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities" (United Nations World Tourism Organization, 2005, para. 1). However, sustainable tourism is understood differently by different people in the industry, resulting in poorly executed tourism development. This is why sustainable tourism, like most other industries, is increasingly becoming "growth-oriented and profit-driven with a relatively short-sighted approach to planning and development" (Mullis, 2017, para. 19). Sustainable tourism is not in its ideal state and therefore it needs to change. It needs to find new models. And finding new models means one thing: it needs to innovate.

Designing for Social Innovation in Sustainable Tourism

The concepts of social innovation and sustainable tourism are closely related, as innovation is an important aspect of sustainable tourism. Social innovations in tourism are needed to develop creative and imaginative communities while minimizing their associated negatives impacts (Mullis, 2017). In order to improve social and environmental performance across the entire tourism sector, both innovation and "empowering local communities to make informed and appropriate decisions about their tourism development" are critical (Mosedale & Voll, 2017, p. 629). In this regard, people need to be competent interpreters of their own lives and competent solvers of their own problems; people are the backbone of the social innovation process (Mulgan, 2006). In this framework, designers can play a crucial role by helping society reshape in the direction of a more participative arena where people are empowered, and learning is central, which make policies more effective (Hubert, 2011). "The role of the designer should initially be to support the development of new concepts and later to make them attainable so they can result in the development" (Chick, 2012, p. 58) of sustainable tourism as social enterprises. "Designers should be challenged to go beyond consumer culture and economic markets and become engaged in socially innovative design" (Chick, 2012, p. 55). They need to facilitate effective coordination and collaboration between themselves, policymakers, organizations and the community in general, resulting in a lasting social fabric that supports sustainable prosperity and self-reliance.



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GABRIEL LAUDISA

Efficacy of Co-Design for People With Dementia

DEMENTIA - CO-DESIGN - SOCIAL INNOVATION

Dementia is a category of diseases that affects cognitive functioning and memory. People living with dementia experience increasing difficulty with day-to-day tasks and eventually die from the disease (Alzheimer's Association, 2019). In Canada, the "Baby Boomer" population is entering old age leading to an increase in the number of people with dementia and pressure on Canadian healthcare. However, dementia is also a global issue and it is estimated that, by 2050, the number of people with dementia worldwide will increase from 44 million to 135 million people (Alzheimer's Research UK, 2014).

Since dementia affects cognitive functioning, daily living tasks become increasingly difficult as the disease progresses, and symptoms worsen over a number of years. These challenges can place a huge burden on the individual and the family who often spend many hours a week performing care-related duties for the person (Alzheimer's Association, 2019). Another consideration is that dementia is an issue that affects people of various cultures, societies, and economic situations. Therefore, unique solutions must be developed to meet the different needs and values of these groups using existing materials and systems. This is the methodology used in design for social innovation (Manzini, 2015). Considering this need for context-driven solutions, one way to achieve social innovation is through co-design.

Co-design is the act of designers and people not trained in design working together as part of the design process (Sanders & Stappers 2008). Throughout this process, stakeholders contribute ideas, experiences, and opinions to guide a design towards an effective solution (Sanders & Stappers 2008). While co-design can be a powerful tool for social innovation, there may be barriers when using co-design methods with people with dementia. Some of these barriers could be physical such as low energy and mobility, while others are cognitive such as difficulty recalling past experiences (Alzheimer's Association, 2019). What methods can be employed to overcome these barriers and others? To find the answer to that question, this paper will reflect on the *Social Engagement Map* project by the MinD organization, which involves people with dementia and healthcare experts in the design process. MinD is an organization that works on advancing the field of design for dementia care (MinD, n.d.) Subsequently, ways to overcome these barriers will be identified.

The *Social Engagement Map* project had two main purposes: to design the social engagement map, and to learn how to conduct co-design processes when working with people with dementia (MinD, 2018). This project can therefore be seen as the first step to many following projects involving co-design in this context.

One barrier to involving people with dementia in co-design is low energy and depression. People with dementia are at a higher risk of depression and, as such, participants may be unwilling to participate or contribute little to the activity (Alzheimer's Association, 2019). To remedy this, MinD conducted an activity in the morning before the prototype feedback session held in the afternoon. As written in the MinD's blog post,

> The morning began with coffee in a sociable outdoor cafe to allow everyone to meet and re-acquainted [sic] themselves with one another and welcome new participants. Moving indoors, a number of inclusive exercises allowed to [sic] people to connect through shared life experience and common interests, enriched by those experiences (MinD, 2018, para. 4).

This activity seemed to help energize the participants and

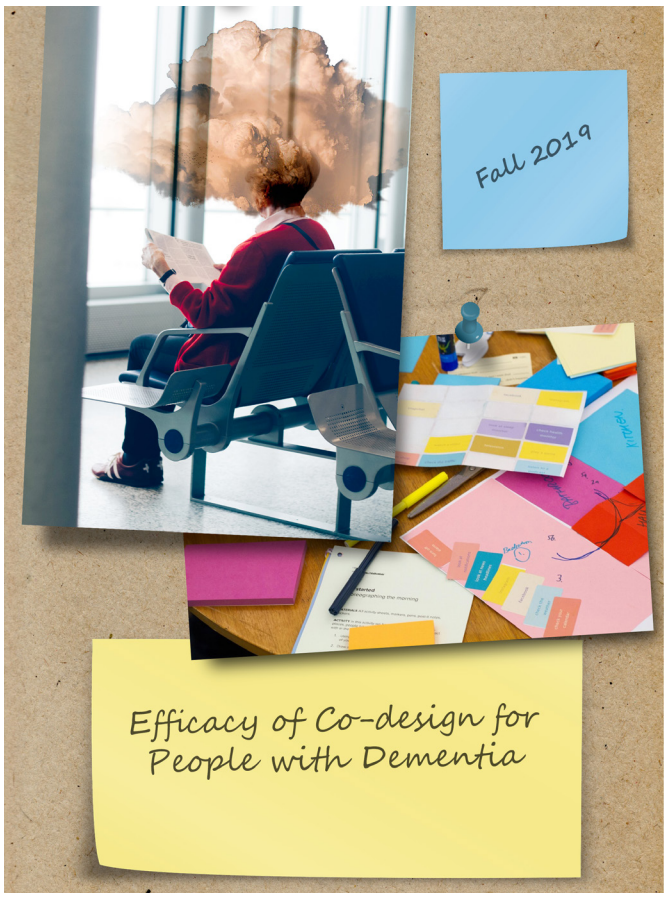
encourage them to contribute to the activities.

Another perceived barrier might be memory recall when asking participants with dementia to talk about their past experiences. For this issue, MinD invited different types of stakeholders to participate in the events. This way, one group could fill in the gaps in other information that the other group did not know or could not remember. In addition, the MinD group used physical prototypes and visuals to gather feedback and suggestions on their designs. This reduced the need to use memory recall. Instead, the person could give feedback on the present situation in front of them. In these circumstances, designers should be aware that most recent memory is the first to be lost among people with dementia. As a result, memories from early life are often the last remaining memories of people with late-stage dementia (Alzheimer's Association, 2019). If early life experience is beneficial to a certain project, then this barrier becomes less of an issue.

As previously stated, dementia is a growing healthcare issue that affects the global population. As the population with dementia increases, more solutions for improving daily living will be designed. To meet the needs and constraints of different groups around the world, solutions can come in the form of a reorganization of the existing system as per design for social innovation (Manzini, 2015). One way to achieve these innovative solutions is to use co-design as part of the design process. Although people living with dementia face increasing challenges with day-to-day tasks, the *Social Engagement Map* project clearly demonstrated the efficacy and value of involving participants with dementia. These participants were able to contribute in a way that benefited both themselves and the researchers. When designing for older adults or people with dementia, co-design should be considered as feasible and valuable. In conclusion, co-design is an effective tool for achieving social innovation in the context of design for dementia.

"If early life experience is beneficial to a certain project, then this barrier becomes less of an issue."

Figure 1. Feedback Session with Prototypes. From *21 May 2018: People with dementia, carers and MinD project members meet for the third time to work together*, https://designingfordementia.eu/21-may-2018-people-with-dementia-carers-and-mind-project-members-meet-for-the-third-time-to-work-together



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HEIDI EVANS

The Potential of Participatory Design on Participant's Empowerment

SOCIAL INNOVATION - EMPOWERMENT - PARTICIPATORY DESIGN - PARTICIPANT

In the context of design for social innovation, it is essential to have a deep understanding of the context in which the design will be used and socio-cultural habits of the those who will use it. One way of gaining this deeper understanding is to involve end-users in the design process from the beginning, i.e., by practising participatory design. Although participatory design has been practised by designers for decades, the level of involvement of end users in the design process has evolved over time. At its earliest inception, participatory design was essentially user-centred design. Users were brought in at the conceptual phase to give their opinions about the concepts or to test them. The level and nature of user involvement in the design process has steadily grown over time to the point where today participatory design has designers working collaboratively with the end users (participants, co-designers) throughout the design process to co-create and co-design (Sanders & Stappers, 2008). The implications of this industry shift towards co-design is changing the landscape of design and redefining the roles of designer, researcher and 'user' (Ibid.). The goal of this paper is to look closely at user engagement in the context of design for social innovation. It will reflect on the outcomes of user participation in the research design process on both the participants themselves and on the final design, with a focus on the empowering outcomes participatory design experiences can have on participants. It does so by examining the results of a participatory design research project carried out in a developing country, Cambodia, with a marginalized population, specifically poor children with prosthetic legs.

The design project that serves as the basis for this paper is a on field work carried out by Hussain, Sanders, and Steinert in Cambodia from 2008 to 2011 and documented in two publications: "Toes that like toes: Cambodia children's perspectives on prosthetic legs" (2012) and "Participatory design with marginalized countries: Challenges and opportunities experienced in a field study in Cambodia" (2012). In those two publications, the authors describe inviting three users, Cambodian children who utilize prosthetics legs, to participate in the design of a new, more effective prosthetic. They purposefully decided to limit the number of children to three. They felt that doing so would allow them to have in-depth, quality relationships with the children. The quality of the relationships established with the users was judged to be more important than the number of users involved in the design process. The authors also describe their decision to involve local Cambodian prosthetic designers and two mechanical engineering students in the project. This was done to reinforce the technical abilities of local designers, teach them design skills and strengthen their capacity to design new products for people with disabilities in the future. The designers went into the design research process knowing many of the issues experienced with the existing prosthetic foot. However, in the outcomes of the study, the participants' input shed light on aspects that were previously unknown to the researchers, such as the level of importance held by the aesthetics of prosthetics. It was only after conducting more participatory research with the children that it was understood how aesthetic "concerns were linked to Buddhist beliefs about disabilities and should, therefore, not be treated as mere user preferences but as actual user needs" (Hussain, 2011, p.102). This in turn led to the development of a better prosthetic, one that had toes that looked like toes and that would enable children to walk

in mud.

The research design process also had a positive impact on the children involved, all of whom were socially marginalized due to their physical condition, age, and socio-economic situation. As a result of being marginalized, they were not accustomed to voicing their opinions or to having their opinions taken seriously by others. In order to get the level of participation required for the research design process, the authors first had to convince the children of the value of their opinions. They then had to build the children's ability and comfort level with reflecting on and expressing their opinion and develop tools to allow them to express ideas. They effectively had to coach the participants on how to take part in research design process. This was essential for getting the children meaningfully involved in the design process. By the end of the study, all three of the children reported that their participation in the research design had a positive impact on their confidence levels. One of the children quoted in the case study reported how the experience had allowed her to find her voice: "before I didn't dare to talk with other people, but now I dare to speak to them […] Because when she [the designer] came, I spoke to her; then I started to dare to talk with other people." (Hussain et al., 2012, p.102)

The Cambodia case illustrates the potential positive impacts of participatory design. Co-designer engagement enhanced the design project's outcome, allowing the designers to identify critical design elements that would have been difficult, if not impossible, to identify without their involvement. The children of Cambodia with prosthetic legs were "experts in their own lives and nobody else can claim that role" (Davies et al., 2012, p 5). The Cambodia case has reinforced my conviction of the positive impact of participatory research design for social innovation projects. Identifying ways to foster meaningful participation by project participants is critical to successful participatory design. As a designer, one needs to nurture participants' belief that they are creative and that their opinions matter and are essential to building an effective design. One needs to develop their awareness of and confidence in the specialized knowledge they bring to the design process, develop their participatory skills, and teach them how to work through co-design process. It is this process that results in the secondary social and interpersonal empowerment outcomes associated with participatory design.

"Identifying ways to foster meaningful participation by project participants is critical to successful participatory design."

References included at the end of the document

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ISABELLA HALL

How Indigenous Knowledge and Worldviews can Help Inform Design for Social Innovation

COLLABORATION - WORLDVIEWS - ENVIRONMENT - RELATIONALITY - RECIPROCITY

People from different cultures have different ways of interacting with the world around them. This influences what behaviours are desirable to have, and what things are most important to society. These opinions and beliefs form a worldview. Worldviews are a set of beliefs and values which determine how an individual interacts with the world around them: from the land, to the animals, to the people (Joseph, 2016). Indigenous cultures follow a holistic understanding of the world, and a unique outlook on how one should interact with one's surroundings and nature (Joseph, 2016). In the next paragraphs, I will be defining social innovation and design for social innovation, as well as explaining Indigenous worldviews, in order to point out how indigenous knowledge and worldviews can help inform design for social innovation.

The concept of social innovation has been around since the 1960s, in academic circles and among practitioners, but it is only in the last decade that it has grown in popularity (Volynets, 2015). Over recent years, many social policy experts, researchers, and other observers have developed many definitions for what social innovation is (Volynets, 2015). A definition comes from Manzini:

> social innovation is a process of change emerging from the creative re-combination of existing assets (from social capital to historical heritage, from traditional craftsmanship to accessible advanced technology), the aim of which is to achieve socially recognized goals in a new way (Manzini, 2015, p. 11).

It is believed that if implemented successfully, social innovation can bring transformative change to societal challenges (Volynets, 2015). With social innovation comes design for social innovation. Manzini says that "design has all the potentialities to play a major role in triggering and supporting social change and therefore becoming *design for social innovation*" (Manzini, 2015, p. 55). Manzini gives a basic definition of design for social innovation: "design for social innovation is everything that expert design can do to activate, sustain, and orient processes of social change toward sustainability" (Manzini, 2015, p. 62). Design for social innovation uses different design initiatives, which have their own modes, timelines, and results, to tackle solutions to social problems (Manzini, 2015).

Indigenous is the term used to describe the collective group of Inuit, First Nations, and Metis; those who are native to the land. Traditionally, Indigenous people have a very different way of looking at the world than those of Western culture. Although there are many iterations of worldviews and practices among the variety of Indigenous people, there are some aspects that are shared. Zoe Todd (2019) explains how the major ideas in Indigenous cultures are the notions of *relationality* and *reciprocity*. According to Todd (2019), the ideas of relationality and reciprocity go hand and hand with how Indigenous people interact with the environment around them. The traditional roots of Indigenous cultures are based on their spiritual beliefs that "everything in the universe has a spirit and is animate" (Government of Alberta, 2016, p. 1). They believe that the entire universe is alive with a constant energy between all things that exists (Government of Alberta, 2016). Their society operates with relatedness in mind, meaning that everyone and everything is connected in some way (Joseph, 2016). Because of this connection, they believe it is important for humans to find a balance between themselves and the universe in which they live (Government of Alberta, 2016,). Indigenous people see the land as sacred, and this idea is prominent in the way they live their life.

Indigenous cultures have their own versions of thanking the land and their prey after they are hunted (Government of Alberta, 2016). For example, traditional "Inuit hunters speak to a caribou's *shua* (its "living essence") before letting their arrows fly. Afterward, they thank the animal for giving its life and places something in its mouth to aid it on its journey" (Government of Alberta, 2016, p. 2). Indigenous people have a respect for the land like no other and use these notions of relationality and reciprocity in their everyday lives.

In reflecting on the concurrencies between design for social innovation and Indigenous cultures, it is important to look at one important feature of this design approach: collaboration. Design for social innovation is a web of

> far-reaching, culturally profound visions of how the world could be improved, of a special capacity to relate to people directly concerned and give them a voice, and equally special creativity need[ed] to imagine feasible solutions and create conditions to tap the social energy available (Manzini, 2015, p. 63).

Here, Manzini explains the importance of cultural collaborations when designing for social innovation, as different eyes can lead to different visions of a solution. In regard to collaboration, Indigenous knowledge and worldviews can add to design for social innovation by giving designers a new outlook on life itself. Indigenous people view the world as a wholly connected place, meaning that everything from our neighbour to the land we walk on is related. This idea can be brought into designing for social innovation as Western designers can take this notion and look at the world in a divergent, more related way. For example, if contemporary society instilled the same worldviews as Indigenous people, being that our surrounding environment is sacred and the universe as a whole is connected, we could potentially change the way society treats the earth. With the environmental issues we have today, it is important to find progressive and positive ways for people to interact with the earth. If designers use the ideologies of Indigenous people, they can potentially change the way Western society views the earth and create products or systems that can create a change. Manzini also explains that design for social innovation is "critical, cultural, and creative" (Manzini, 2015, p. 62). Again, this idea of utilizing the practices and worldviews of Indigenous people allows for a cross-cultural understanding which is beneficial when designing for social issues.

Indigenous knowledge and worldviews can help inform design for social innovation in new and progressive ways. Design for social innovation thrives off of the ideas and visions of everyone from every culture and uses this knowledge to come to creative, unmatched answers to societal problems. By bringing the ancestral knowledge and worldviews of Indigenous people into the practice of design for social innovation, great things can occur. By implementing the idea of relatedness into their own lives, designers would be able to collaborate with others more effectively and therefore, would be able to see the world in a new way, bringing unique, cross-cultural views and solutions to the problems on the table.

"Everything in the universe has a spirit and is animate." (Government of Alberta, 2016, p. 1)

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JORDAN LINTON

Social Innovation and Urban Adaptation

CLIMATE CHANGE - URBAN - SOCIAL INNOVATION

Design for social innovation is the concept of developing real and practical solutions to social and environmental challenges that drive or help drive social change (Sherwin, 2012). A looming environmental challenge that humanity faces is climate change, which poses an existential threat on our species. How can design for social innovation and sharing help those living in urban environments adapt to climate change? The aim of this paper is to reflect on the different design solutions for social innovation that can be implemented to help those living in urban environments adjust.

As more people move into cities, preparations and adaptations will have to be undergone if quality of life is to be maintained. Design for social innovation plays a crucial role as systems and products will have to be rethought to deal with a vastly different set of parameters. Since social innovation centres around the public good, and climate change will provoke change and challenges in food, transport, and housing, there are many designs for social innovation that should be implemented for those living in urban environments -many of which revolve around the concept of sharing. To deal with food shortages, urban areas should set aside space for communal gardens, use roof space for farming, and convert old buildings into indoor farms. To deal with transport emissions and damaged infrastructure, more public transit should be utilized in addition to implementation and planning for backup routes when others are flooded. To deal with housing shortages and lack of space, urban areas should offer more customizable, small spaces alongside apt greenspace. Radical changes will have to be implemented to stymy the worst of this impending crisis. The UN Department of Economic and Social Affairs estimates that two-thirds of all humans on Earth will be living in cities by 2050 (United Nations, 2019). What sorts of difficulties will the majority of all humans face?

Food security is considered a matter of national security. Extreme weather events pose a major obstacle to current systems of agriculture. In the coming decades, crop yields are projected to decrease due to atmospheric carbon (Tubiello et al., 2007). Climate change poses the potential for widespread food shortages, particularly to those living in urban environments.

Another relevant challenge will be related to transportation since many cities were built and planned around automobile transit, which has resulted in urban sprawl (Melosi, 2010). As a result, an increasing amount of people rely on automobiles for transport (Turcotte, 2008). With consequences of climate change such as flooding, roads at risk of flooding will not be able to be used during certain times of the year, impacting travel (Suarez et al., 2005). Climate change poses the potential for widespread loss and damage in transportation infrastructure, which greatly affects those living in urban environments.

Housing in urban areas will also pose a challenge as more people move into cities. As the world population increases, less space will be available to individuals (Nuwer, 2015). A study conducted in 2012 found that raising children in crowded spaces can have several negative impacts which can persist throughout life (Solari & Mare, 2012). Extreme weather events have the potential to damage and destroy houses and dwellings, which will affect more people living in urban environments.

Design for social innovation will be necessary to usher in and implement wide-scale societal changes.

Urban farming is the concept of growing crops in public

and shared spaces in urban environments. To address the distance between urban environments and rural farms where food is grown, social innovations geared around sharing (such as urban farming) can be implemented through municipal policy. This would negate the need to transport crops over long distances. It can also be done indoors and vertically using far fewer resources than traditional agricultural practices (Despommier, 2013). This would allow residents to lower the net emissions of their food, while allowing them to proactively fight climate change (Cleveland et al., 2014), allowing for a greater sense of purpose.

Shared transit (such as public transit or autonomous taxis) can be used and more widely adopted to address carbon emissions from transportation. Shared transit paired with electric autonomous vehicles will have a further reactive effect on urban adaptation for climate change (Greenblatt & Saxena, 2015). To address flooding and unusable roads for portions of the year, the social innovation of the acceptance and accommodation of natural cycles will be implemented, which will serve as a proactive adaptation to climate change for those in urban settings. City and public transit planners will have to account for this phenomenon, allowing for effective detours to be implemented quickly to avoid delays and damage to infrastructure.

Crowded communities must incorporate many accessible and shared greenspaces so that all inhabitants can have access to nature, which has been found to increase wellbeing in a multitude of factors (White et al, 2019). Along these lines, people in smaller spaces will grow accustomed to less space and closer proximity to their neighbours, mitigated by shared greenspace. In this way, housing issues in urban areas revolving around smaller living spaces can be solved with an increase in shared community greenspace.

In conclusion, new design innovations focused around sharing in food production, housing, and transportation will all allow for proactive and reactive social innovation. Vertical farming, communal gardening, public transit, and greenspaces are just some of the many possible innovations that can mitigate the issues in urban areas posed by climate change. Every environment will command unique solutions and will require the shared efforts of all.

"How can design for social innovation and sharing help those living in urban environments adapt to climate change?"

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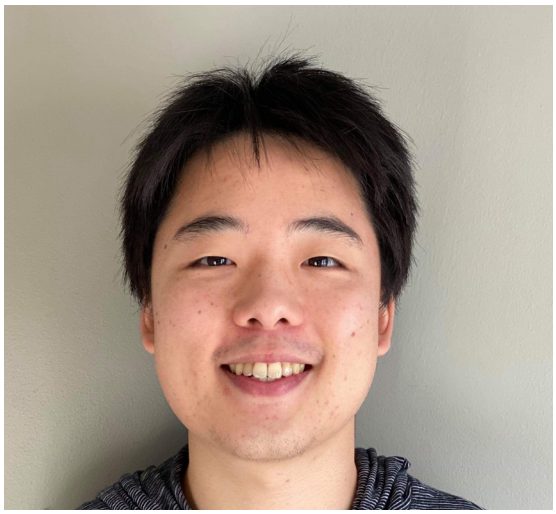
JUNE SOO LEE



Responding to the Fourth Industrial Revolution with Design for Social Innovation

TECHNOLOGY - FOURTH INDUSTRIAL REVOLUTION - DESIGN - SOCIAL INNOVATION - FRAMEWORKS

Over the years, technology has changed the way we live, work, and relate to one another. We are now living in an era called the fourth industrial revolution where technologies are now dictating the future of the people's lives, which can be a real danger for those without new understanding or those who are not aware of the upcoming movement, since no one can yet predict the scale of change (Aurik, 2017). This paper will look at how design of social innovation can help people in being aware of the pervasiveness of the technology of the fourth revolution in their everyday lives and in being able to manage that influence on their choices as consumers. The solutions that can increase awareness of the speed and scope of the technological changes happening now come from design for social innovation by creating frameworks for thinking about and responding to them.

The Fourth Industrial Revolution: History, Effects, and Frameworks

Building from the electronic and digital revolution, the fourth industrial revolution is the advancement from simple digitization to innovation based on combining technologies that allow companies to innovate in manufacturing and engineering (Lee et al., 2018). The revolution can potentially improve economic development and the quality of our life by affecting the business models. It could reshape customer expectations, the quality of products and services, and lead to new innovations (Lee et al., 2018). This can give rise to a positive impact on society, but it can also lead to potential risks. According to the 2013 study from Frey & Osborne (2017), automation has taken over 4 million manufacturing jobs in the United States, replacing workers with machines and software. This number will increase rapidly, and the 2013 study from Frey & Osborne (2017) shows how, in the next two decades, over half of the workforce will be replaced by technology. The danger of the revolution is bigger than imagined, yet not many people in the middle and poor classes are aware of this change that is going on right now. The problem is not learning from the history of the previous revolution, which leads to a lack of national or international conceptual frameworks to think about answers and decisions with respect to the change (Maynard, 2015). We must look at how technological changes affect the nature of work and society from the past and then use the past's lessons on today's problems (Aurik, 2017). The first industrial revolution introduced steam-powered machines in the United Kingdom, and this caused a change in working class families' lives by companies forcing them to move from rural areas into industrial areas to find work. (Aurik, 2017). The second and third revolution introduced electricity, which created new professions like engineering and teaching, with middle classes demanding new social policies (Aurik, 2017).

One way to raise awareness, according to Lee et al. (2018), is to inform the government about the revolution and let citizens and tech companies engage with the government. However, the government seems to be behind on the data and has yet to find effective and sustainable solutions to the crisis due to skepticism on whether the fourth revolution will have a dramatic effect on citizens' individual lives (Maynard, 2015).

Analysts have developed frameworks and dialogues on how the government and tech companies should respond to technological change (Lee et al., 2018). First, we need to foster effective stakeholder dialogue because we still lack the method to ensure positive outcomes from combining

technology. One framework is to provide educational opportunities for current and future stakeholders, from consumers to CEOs. This influences their decisions on buying and selling goods and services during the fourth revolution (Maynard, 2015). Educational platforms can spread the word on the revolution to society by creating opportunities in recreational areas and on the internet like YouTube and Twitter (Maynard, 2015). Another framework we can use is developing foresight tools, such as scenario planning and providing programs for detecting early warnings on potential widespread failures of combining technologies (Maynard, 2015).

Discussion

Learning from past changes, we can use design for social innovation to bring awareness to people about the fourth industrial revolution. Design for social innovation, defined as a new creative idea that works in meeting social goals, can help in having companies and government work together to raise awareness among people, especially the middle classes since it affects them the most as consumers (Manzini, 2014). It seems that we still lack effective and sustainable solutions to technological changes due to the government lacking knowledge of modern technologies. Companies could take advantage of the technological changes since they increase revenue by replacing human workers with automation. The changes, however, provide better quality in goods and services, which influence the way consumers buy their products. I think designers can use social innovation by creating new ideas by turning craftsmanship into advanced technologies (Manzini, 2014), since the fourth industrial revolution is the current era with little data on the outcomes of the future (Maynard, 2015).The possibilities on whether the fourth industrial revolution can create new jobs or affect people's lives are unclear since this is a new era. The methods used when designing for social innovation can possibly raise awareness and influence consumers' behavior, but it is still unclear whether the methods are effective since the issue is not a concern the government is dealing with as of this time (Maynard, 2015). However, it is not too late to alter people's perspective on the fourth industrial revolution. Designers are now facing new challenges and issues on various projects involved in the new technological change and dealing with coming up with new innovative ideas in achieving social goals.

"How can design of social innovation help people in being aware of the pervasiveness of the technology of the fourth revolution in their everyday lives and in being able to manage that influence on their choices as consumers?"

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KAJ HALLGRIMSSON

Design for Social Innovation in and With Traditional Communities

DESIGN - SOCIAL INNOVATION - TRADITIONAL - CULTURE

Design for social innovation seeks to develop meaningful social practices that improve on previous ways of doing or interacting (DESIS, 2016). It works by identifying potential new ways of doing things, testing these ideas and evaluating outcomes; the outcomes of social innovation contribute to building social fabric, reducing environmental impact and regenerating common goods (DESIS, 2016). One positive outcome of design for social innovation explored in this paper is the revitalization of cultural practices and traditional craft in indigenous or traditional communities achieved by empowering communities through design. In actual fact, design can be used to develop new ways of thinking about traditional craft, cultural practices, and their local economy (Yang, 2015). After working on a certain method of doing for generations, it can be hard to move forward and adapt cultural practices for modern-day relevance (Yang, 2015). The design experience undertaken by students working alongside villagers in the Foothills of Taiwan to rejuvenate their traditional rush-weaving industry, discussed by Yang (2015) in "Industrial Design Students Design for Social Innovation: Case Study in a Taiwanese Village", is summarized and discussed here to give insight into how design knowledge can positively influence and empower the livelihood of traditional ways of life.

The Role of Design in Revitalizing Traditional Cultural Practices

Everyone is a designer in their own way. Professional designers are trained to design for other people and have traditionally done so through empathetic design and user testing (Sander & Stappers, 2008). As designers, we have a tendency to express ourselves through design, in the same way when designing with other people for their purposes, their stories have to be expressed in the final design outcome (Lawson, 1980; Despres, 2016). When designing for social innovation to produce new social engagements within a cross-cultural context, it is imperative that we consider the complexities of the lives of the people in the community while understanding and acknowledging the historical context that has brought their culture to its current state (Kolvach, 2009). Therefore, design for social innovation happens effectively through participatory design and co-design (Despres, 2016). In the context of adapting traditional craftsmanship and industry to fit the modern lifestyles of traditional communities, co-designing and collective dialogue are ways to bring ownership of production to the people of the community (Despres, 2016). Designers have the ability to contribute their design knowledge when working with people to supplement their craft and use it to iterate old ways of doing things, and to find new opportunities where traditional knowledge can provide great value (Yang, 2015).

Design Experience in a Taiwanese village

The design experience discussed by Yang (2015) in "Industrial Design Students Design for Social Innovation: Case Study in a Taiwanese Village", shows the amount of positive change that designers can bring to a community. In the case of the Foothills village, rush weaving had been a traditional craft passed down over generations, but the modern production of industrialized products has seen a decline in rush-weaving practice and teaching. By co-designing new activities, processes, interactions, and products with the community in the foothills, the Taiwanese students helped to educate the people of the Foothills to think outside of traditional rush-weaving

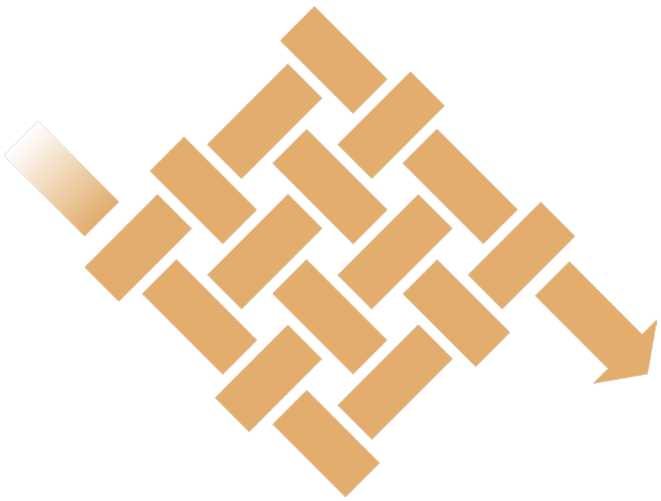
activities. Unconventional rush-woven products were created with the weavers. These new ideas pushed the craftspeople to think outside of woven hats and rugs. Additional creative work, such as branding and packaging, was devised with the community to distinguish their quality of craft from lower-quality wholesale alternatives. These new initiatives promoted a fresh rush-weaving culture in the community, which turned their traditional industry into a new enterprise. Furthermore, one of the designs created with an elderly rush-weaving woman won a *Muji International Design* award in 2014. The involvement of design students with the community led to greater social interaction between community members, new ways about thinking of their traditional craft, community, place in the economy, and even reuse and recyclability of waste objects (Yang, 2015).

Discussion

As trained designers, we often make the assumption that we are able to tackle almost any problem and devise a solution. Therefore, it is easy to internalize the decision-making process to inform the design of "perfect" products or systems. The issue is that we, as designers, have to design things that work with and for others. Everyone who interacts with a design will contribute different values, experiences, and points of view. To truly design for people, we must work with them to identify what is important and make something that is relevant for their way of life. In the case of traditional communities, this is even more important as these people live their lives with different experiences than someone from a contrasting culture, region, or any city. By involving people in the design process, they are given a greater voice and become more invested in the process and final product. This can be seen in the case of the traditional rush weavers who became more involved in the creative process and enjoyed exploring the depth of their craft.

Products, services, or activities that are designed through co-design become culturally relevant for any community, and with a sense of ownership they are easily adopted and maintained. Traditional knowledge and design knowledge can be used in tandem to discover and approach innovative ways of dealing with traditional industries and ways of living through co-design.

The implications of the case described above show that with the help of design, specifically co-design, positive social, cultural, and economic change can be adopted. Working with a community to develop new design ideas is important for these designs to have any cultural relevance and for community members to adopt these new practices as stakeholders. Traditional knowledge is an important aspect of many cultures as it guides the way communities think and approach problems. This knowledge can be used to inform design decisions and provide deep insights into human interactions and the value that these products, systems or interactions provide.



"To truly design for people, we must work with them to identify what is important and make something that is relevant for their way of life."

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KATHERINE BARRETT

How Gender-Biased Design Research can Limit and Inhibit Social Innovation

GENDER - SOCIAL INNOVATION - DESIGN RESEARCH

Design research is a *systematic inquiry* that takes place in the design process. This inquiry focuses on understanding who we are designing for (Bayazit, 2004). Design research is an integral part of the design process in creating a user-centred product. If we look at the current practices in design research, it misses important information due to a gender data bias (Criado-Perez, 2019). Gender data bias is a gap of missing information. This gap comes from research lacking in ergonomic data, gendered statistical information, and user data. This gap results because women are often and routinely not included or considered in the design process (Criado-Perez, 2019). It is important to close this gap to design for social innovation. Closing this gap entails including women in the design process and gathering gender-based information that may be missing.

Leaving women out of the design process can inhibit and limit social innovations. For an idea to be socially innovative, it must not only bring together perspectives but also work to meet social needs and improve people's lives (Saska-Crozier, 2016). If we do not include women in the design research process, the design will be missing an important perspective. Additionally, the design will not fully understand the needs of the user. If it does not fully understand the needs, how can it meet them? Meeting these needs and implementing socially innovative design is important as social innovation helps tackle wicked problems, problems such as resource scarcity, climate change, economic crisis, growing poverty, and gender equality. These problems are often referred to as wicked because of how they are seemingly impossible to address but have wide-reaching consequences (Peters, 2017). Gender equality, for example, has been cited as important for social and economic progress. Gender equality is defined as the rights of different genders to have a similar social position and receive the same treatment (Saska-Crozier, 2016).

Despite the importance social innovation plays in gender equality and the promising research in social innovation related to gender equality (The Young Foundation, n.d.), the Young Foundation has stated that it as "found a lack of structured systematic ways in which gender equality and social innovation have been enacted together" (The Young Foundation, n.d.). Closing this data gap will help create a systematic way of including gender in design research, thereby creating more opportunities for design for social innovation. To explore the implications of utilizing gender-biased research in a design process, this paper will look at the design of a *clean stove* for developing countries.

In sub-Saharan Africa, 80% of homes use a three-stone stove. This creates issues as they give off toxic fumes and pollution and are the second biggest killer in sub-Saharan Africa (Amegah & Jaakklola, 2016). Women are often exposed to these fumes for three to seven hours a day, often using them in their homes where there is little ventilation (World Health Organization, n.d.). As outlined by Criado-Perez (2019), many projects have aimed for social innovation by the creation of a clean stove. Many of these projects have failed as a result of this gender data gap. Failure in this situation is defined as a lack of implementation. However, one clean stove was successfully implemented. The key to the success of this design project was the inclusion of gender-based design research. This allowed the design researchers to close this data gap and aid in the creation of social innovation.

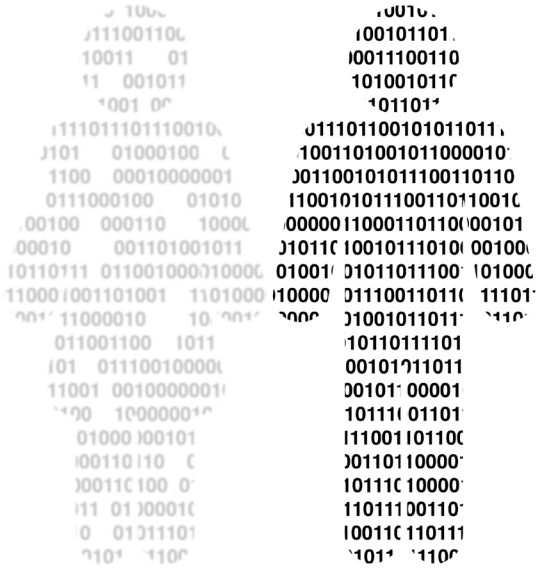
Criado-Perez (2019) details how development agencies have tried to implement clean stoves since the 1950s.

These efforts were often focused on environmental issues rather than the health effects on women. During the design process, these stoves were developed with little regard for women. This is because women are not considered as the head of households and thus missing from a lot of statistical information. These stoves increased cook time and required more attending. This prevented women from multi-tasking and taking care of their children. These stoves also needed maintenance that was often seen as unimportant to men who held the purchasing power. Additionally, wood often needed to be split, which was physically challenging for women and which their traditional stoves did not require. This misinformation created a gap in gender data that meant these stoves did not meet user needs and failed to be implemented (Criado-Perez, 2019).

In a contrasting example, in India in 2015, design researchers were also working on designing a clean stove. In this situation though, they incorporated women as an important part of the design research, since the design researchers understood that women were the primary users of stoves. Using more inclusive design research allowed the research to close this data gap and understand the challenges outlined before. This allowed them to design a product that did not affect the women's cooking experience while also reducing wood use by 63% and particulate matter by 89% compared to traditional stoves (Climate Healers, n.d.). This implementation improved the health of women and met their needs.

By looking at these two contrasting examples, it is clear that closing the gender data gap affects the successful implementation of clean stoves. Implementation is important as it has been found that when women adopt clean stoves, they have more time for social activities, family, community engagement and reported sending their kids to school more (Criado-Perez, 2019). This is social innovation as it brings people together while also improving their lives.

Gender-biased design research inhibiting social innovation extends beyond just a stove but to smart home systems, toys for kids and self-driving cars. Designers need to take note of and look at their design practices to see how they can limit the bias of their research. Furthermore, it is important for scientists and researchers to gather ergonomic, social, and economic data on women so designers can have access to this information, thereby setting a foundation to allow for the success of designs for social innovation that will help create gender equality.



"If we do not include women in the design research process, the design will be missing an important perspective."

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MEG SCHWELLNUS

Redefining Social Innovation to Include Categories

SOCIAL INNOVATION - DESIGN - DEFINITIONS - CONCEPTS - ELEMENTS

Social Innovation (SI) is a concept that has many definitions and ideas associated with it, with none being agreed upon universally (Howaldt, 2017). However, during the design process, a set of criteria is required to restrict the design outcome and keep it in line with its goal. In designing for SI, designers and innovators face the challenge of choosing which of these many definitions and ideas they should use as a guide to create for, or as a set of dimensions to create within. This challenge is difficult to solve, as there are many dimensions in which the definitions differ, including how SI manifests itself, where it starts, its goal, and the context in which it can occur. This can be due, in part, to the many perspectives from which SI is approached (Bitencourt et al., 2016). Most scholars agree on one idea: that SI changes society (Bitencourt et al., 2016; Edwards-Schachter & Wallace, 2017; Goldenberg, Kamoji, Orton, & Williamson, 2009; Howaldt, 2017; Ionescu, 2015). In performing a review of literature whose focus is defining social innovation, the questions of how, who, why, and what about changes to society were researched. A total of 15 definitions were analyzed, in addition to the use of a systematic review that included 252 definitions by Edwards-Schachter and Wallace (2017). Each definition was assessed for its key elements, and these elements were compared to one another to determine variables of differentiation. The findings are discussed below.

Current Definitions of SI Found in Literature

From the definitions found, several variable levels differ significantly, such as the context the definition is being used for. North America was found to use different elements to define social innovation compared to the continent of Europe, changing the focus of the definition to the process of social change rather than sustainable development (Edwards-Schachter & Wallace, 2017). For designs where businesses and governments were involved in the process, the definitions included specification on the type of company involved, such as non-profit vs for-profit organizations (Goldenberg et al., 2009).

Scope, a determining factor of context, seems to remain unaddressed by current definitions, as no mention of it was found. For example, there was mention of businesses and governments involved, but not at what scale and what size of project the social innovation outcome was intended for. Thus, there is difficulty applying definitions to design outcomes, as the context of SI cannot be defined properly. Scope can also determine several elements of a design outcome for SI, such as how it is implemented.

Other definitions not focusing on the context of SI instead seem to follow a description such as *fundamental changes that meet social needs* (Bitencourt et al., 2016; Edwards-Schachter & Wallace, 2017; Goldenberg, Kamoji, Orton, & Williamson, 2009; Howaldt, 2017; Ionescu, 2015). However, within this broad idea, there is debate over elements such as *new* vs *rearranged* functions in society causing the change, *social challenges* vs *social needs* and the inclusion of this goal for SI, and platforms for social innovation – *how*. Variety in the manifestation of SI includes products, services, legislation, policy, organizations, ideas, and values (Goldenberg et al., 2009). The degree of variety included in a definition differs across the literature, depending on the specificity and thoroughness of it, as well as the perspective from which the definition is driven (Ionescu, 2015).

Thus, the question of universally defining SI remains unanswered, with the variation of key ideas being vast. With respect to the field of design, these differences

leave designers unable to truly understand what they are designing for, and thus are left without a set of criteria to design for when designing for social innovation. This leads to the question: "How can we design for something we cannot define?"

Proposal for a New Perspective

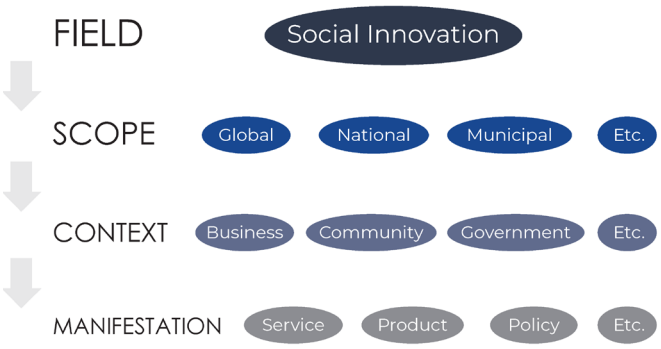
Stemming from the perspective of encouraging diversity (Bitencourt et al., 2016), a recommendation by this author in response to the variation across the definitions is to view SI as a field with enough diversity to create categories of social innovation with their own defining elements, to enable a universal understanding of social innovation, and the many different scenarios in which it can manifest. As determined above, current definitions of social innovation, from which a set of criteria would be formed, are too varied to be able to be used as a guide for design. Sectioning social innovation into categories that address the factors of scope, context, and manifestation could more easily allow for SI to be used as a guiding principle of various types of design, as these three factors seemed to the most variant and recurrent in the definitions of social innovation analyzed. These categories can be organized in a hierarchy or 'tree', according to type, as they follow a specific order.

Scope: in addressing scope, social innovation can be considered much like the field of economics, in that there are multiple scales where it can occur. When describing economics, there are two main levels of scope, macro- and micro-economics and within each there are more scales that are addressed. Definitions for SI can use a similar approach in being categorized by scale: global, national, provincial, and municipal. These four scales also follow government levels, thus allowing for the government to be determined as an actor in social innovation, though it is not necessary. In addition, designing for social innovation at a chosen scale informs the designer of obstacles to be considered in the design outcome, such as how to ensure full acceptance of the outcome at the chosen scale, and which social challenges the design is addressing.

Context: the context of the innovation was mentioned above as a factor in describing social innovation. Some definitions used context as a focus, whereas others did not use it at all; the latter group lacked specificity, however the former were too specific to be used as a universal definition of SI. Thus, context can be another type of categories, in which the definition to be used for an SI design depends on where it is found. The main existing contexts found in the review performed for this paper are businesses and their infrastructure, communities, and legislation. This author proposes that these main contexts be used as more categories for SI, falling under scope in the hierarchy of SI being proposed.

Manifestation: the manifestation of design for SI is an important factor to consider as it can change throughout the design process. Since one idea can have many different manifestations, each can be considered during the design process and one decided on for the outcome. Thus, it can be placed on the tree as another factor of separation for SI that can be used to better understand how it comes about. However, manifestation is not required in the hierarchy since it is a smaller detail in the concept of social innovation and its instances, and it does not determine other considerations such as who and what is involved in social innovation design, as scope and context do.

In addressing SI as a field with a hierarchy for categorization, much like taxonomic levels of living things, designers can use this tree to understand what it is they are designing for when describing their project as a design for social innovation. For practical application of this proposed hierarchy, there is much to be considered and researched. Elements not addressed by the hierarchy have been included in many current definitions of SI, such as the goal of meeting social challenges and needs. These neglected elements can be included in the definition of the field of SI, which can be a broad statement at the top of the hierarchy. This raises the question: what is the fundamental concept of SI? As mentioned above, scholars seem to agree on one idea: that SI changes society. The goal of the change, and its roots, are to be debated and included in a future definition for SI as a field.



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PATRICK WATT

Application of Industrial Design Strategies in Education

SOCIAL INNOVATION - INDUSTRIAL DESIGN - EDUCATION

This paper will pose the following question: How can industrial design strategies be used to generate meaningful social innovation, regarding how we deliver public education?

In the process of answering this question, readers will gain insight into where connections can be made, between industrial design, social innovation, and public education. These connections will be made clear using literature collected and analyzed from: an education innovator, a social innovator's study of a university, and an industrial designer working on social responsibility. Analysis will start with how teachers may be thought of as designers. Thinking of teachers as designers will be presented as a strategy to design classroom assignments around the process of learning. The process of learning will then be analyzed and defined in terms of a concept called transformational learning. Lastly, industrial design tools will be presented as a potential way to support a goal of transformational learning in the classroom.

Since the paper topic is social innovation within education, I decided start literature review around teachers. I think this makes sense because they are the leaders of the social environment that is the classroom. In looking up how teachers may use industrial design strategies, I remembered that anyone using these tools may be considered a designer. That is when I came across the reading by Scott & Mota (2014), named *Teachers as Designers*. The reasoning given for using this *teachers as designers* concept to develop social innovation within the classroom is to focus on learning as a process rather than the judgement of an end result. The authors describe why this is useful:

> Learning involves the students in judging their own work against a curriculum standard and engaging in meta-processes of learning (i.e., an understanding about their own learning; the development of learning pathways; the utilization of formative assessment processes; the development of personal learning strategies; and an internalization of the curriculum (Scott & Mota, 2014, p.61).

This quote suggests that actual learning resides in the processing of information, whereas the answering of test questions is just the feedback tool for evaluating whether the learning happened or not. Consequently, this suggests that directing investment toward teachers and students with the purpose of developing learning processes, rather than mostly outcomes, may be a useful social innovation. This gives us a hint as to how industrial design strategy may be useful to this purpose, since industrial design work is all about the process.

In order to understand better how industrial design strategies can be truly useful toward achieving the social innovation described above, the concept of the *learning process* needs to be defined clearly. A defined concept for the learning process that teachers and students could focus on in this context might be what is called *transformational learning.* This concept is laid out in the source by Rivers et al. (2015). The transformational learning concept is centred around the idea that quality learning is most often an uncomfortable and challenging process. The reasoning for this is that quality learning must be a process of challenging one's initial assumptions about the world and evaluating thoughts through self and peer-critical reflection. Essentially, being proven wrong and intellectual debate are both emotionally rough, but necessary for quality learning processes to take place. This must be true because no student already knows all the answers. This is the core ideology of transformational

learning; the goal is to transform student thinking into higher and better quality forms through rigorous process. I think now it can be made clear why the paper topic question is even a relevant one to ask. The question again is: How can industrial design strategies be used to generate meaningful social innovation, regarding how we deliver public education? Melles et al. (2011) provide a reason for why the question is relevant, when they point out that industrial designers have been primarily concerned with being socially responsible to people since the profession's conception at the end of the nineteenth century. After all, what's the point of designing a product if there is no social value for it? Industrial designers are also trained in the idea that the right process is often more important than the right result. They are trained in this because the process of designing a product often reveals new requirements and opportunities for the end goal of the result. Industrial design process and transformational learning are also highly complementary. Quality industrial design process calls for the designer to challenge initial assumptions and always be ready to adapt thinking in a way that can be uncomfortable. Just like no student begins school with all the answers, industrial designers never start a design project with all the answers. Therefore, I think the paper question is relevant because transformational learning and industrial design strategy are both all about developing a learning process.

So how exactly can industrial design strategies be used to support teachers in developing transformational learning in students? There were two main strategies found during my analysis that may achieve this social innovation.

One main industrial design strategy that teachers could use to develop transformational learning came from the reading by Melles et al. (2011). These authors describe the strategy of co-design and participatory design techniques. These techniques call for the designer to include many stakeholders of the project in the actual design process, rather than just asking them questions. *Teachers as designers* can use this to develop lesson plans that support transformational learning because it allows them to better understand the initial beliefs and knowledge of students. Including students in the design of their own learning should reveal ways that the lessons could be adapted to each class group's learning strengths and weaknesses. It also could include parent/peer groups in the lesson design process, which would likely enrich the teachers understanding of the students' cultural and world views in context. This idea does not suggest that the overall goal of the curriculum should be able to be adapted, just the delivery methods.

The second strategy is to give students a kind of *design brief* lesson instead of normal instructions when assigning a problem to solve. Design briefs are a common strategy used in industrial design but the idea of using it in the classroom comes from the reading by Scott & Mota (2014). The authors suggest that teachers could transform thinking in students by acting more like a *thinking facilitator* to guide students toward completing the design brief, rather than mostly being a giver of information (this is clearly complementary to the teachers as designers concept). By using this design brief strategy from industrial design to generate classroom assignments, I suggest that teachers could facilitate transformational learning in students. This would be done by going through the process of solving the more open-ended nature of the problems that design briefs offer over normal instructions and tests.

"Quality learning is most often an uncomfortable and challenging process."

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PRAKRITI PRATIJIT

The Impact of Transportation Engineering in the Context of Urban Planning for Social Innovation

URBAN PLANNING - TRANSPORTATION ENGINEERING - INTERCONNECTIVITY

Social innovation is a broad term open to many interpretations; however, for the purpose of this paper we will be using Phills *et al.* (2008) definition of *desirable social innovation*. It defines social innovation as "a novel solution to a social problem that is more effective, efficient, sustainable, or just than existing solutions and for which the value created accrues primarily to society as a whole rather than private individuals." (Phills et al., 2008, para. 3). Tackling social innovation through the design of infrastructure in theory provides cities with long-term, sustainable solutions that appeal to the general public.

Poverty is a social problem that plagues almost every urban or rural area. One of the major causes of poverty is lack of proper infrastructure (Braveman & Gruskin, 2003). One aspect of infrastructure that can greatly aid in diminishing poverty is well-functioning public transit (Whitfield, 2017). Many people living in low-income neighbourhoods rely on public transit as their main mode of transportation to jobs, education, and basic amenities. Housing available near public transit routes tends to be inaccessible to low-income people due to the high cost of such housing (McKenzie, 2013). Inequality of access to public transit in low-income neighbourhoods prevents people in these neighbourhoods from accessing well-paying jobs, goods and markets, quality education, and other neighbourhoods (Whitfield, 2017).

Urban planning is a multidisciplinary field which affects almost every aspect of our lives, from housing to infrastructure to public policy. Due to its multidisciplinary nature, there are a number of branches of urban planning, all of which deal with the public good and improving the quality of life of citizens while taking into consideration health, aesthetics, equity, and efficiency (Canadian Institute of Planners, 2019). There are five main urbanization problems that urban planning is designed to address - poverty, housing availability and cost, transportation congestion, environmental decay, and fiscal squeeze. These problems are interdependent, and the multidisciplinary nature of urban planning is crucial to solving these problems (Whitfield, 2017). Transportation engineering is a branch of civil engineering which handles infrastructure. There are two major categories of transportation engineering in the context of urban planning that are of interest when it comes to social innovation - public transit and multimodal transit (Whitfield, 2017). These two categories play a major role in the interconnectivity of a city, which can help reduce poverty and environmental decay in both metropolitan and rural areas.

One proposed solution to this problem is implementing a high-performance bus (HPB) system, otherwise known as bus rapid transport (BRT). BRT consists of high frequency busses running along transitways and major transit nodes. BRT aims to have the same efficiency as metro transit at a fraction of the cost. A study performed in Barcelona showed that a well-designed BRT system can meet the demand of bus-based transit and a portion of metro-based transit while simultaneously saving bus agencies money (Estrada et al., 2011). Other viable options include light rail transit (LRT) in combination with BRT, as is seen in Ottawa currently, or a subway system in combination with regular bus systems as seen in New York.

Another proposed solution is the implementation of multimodal transit – otherwise known as complete streets. Complete streets are those streets which accommodate all types of transit (pedestrians, cyclists,

motor vehicles, transport vehicles, etc.) (Nes & Bovy, 2004). Multimodal transit and complete streets inherently allow for accessibility and interconnectivity by opening up major streets and arterial roads to all types of transportation, however it has a more significant impact on sustainability. This is due to the fact that the implementation of complete streets helps clear up traffic congestion and idling time of automotive vehicles, which helps reduce a city's carbon emissions (Whitfield, 2017).

Complete streets are considered a social innovation due to the novelty of the concept. A typical complete street consists of the following: wider sidewalks, curb cuts and ramps, crosswalks with islands for pedestrians, bike lanes and paths, bus lanes and shelters, central left-turn lanes, lower traffic speeds, and landscaping (Litman, 2015). Typical streets in metropolitan areas consist of roads that are either used for motor vehicles (main streets, arterial streets, highways, etc.) and streets that are for bike or pedestrian use only (neighbourhood sidewalks, pedestrian walkways, etc.). Due to the fact that complete streets allow for the integration of multiple modes of transit in one street, complete streets encourage the use of non-motor vehicle transportation. This, in turn, improves public health as modes of transportation such as walking and cycling are designed to be safer on complete streets relative to regular automobile-based designs for streets, which reduces emissions emitted from congested trafficways (McCann, 2011). Multimodal transit manages to tackle two social problems at once by increasing interconnectivity and accessibility to amenities while reducing emissions and harmful environmental impacts of automobile dependency (Whitfield, 2017).

Referring back to the definition of *desirable social innovation* as defined by Phills et al. (2008), social innovation must be efficient, effective, sustainable, and beneficial to the general public. Using transportation engineering in an urban planning context in order to improve interconnectivity and sustainability of a city is a very promising form of social innovation. Through transportation, there is the potential of reducing emissions, increasing public health, and increasing accessibility to education, health care, and jobs to low-income areas. These solutions are not only effective, but they are long term solutions which will continue to improve as a city grows and develops. Transportation engineering in an urban planning context helps lay down an easy-to-follow framework in order for social innovation to flourish as a city grows.

"Using transportation engineering in an urban planning context in order to improve interconnectivity and sustainability of a city is a very promising form of social innovation."

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SARAH ALLAHMORADI

Co-Creating Pillars: Building Networks for the Future

CO-DESIGN - NETWORKS - ENVIRONMENTAL - ECONOMIC - SOCIAL ISOLATION

Individuals think and perceive their world in unique ways, and what each person values is built around their experience. Environmental, economic, and social factors emerge over time and are specific to each person. These have been defined by Imbesi (2016) as pillars. Pillars are specific to each individual and are a combination of conscious and subconscious thoughts and interactions between the user and the world (Imbesi, 2016). Designers need to be aware of what each pillar means to the people involved when designing a product or system. This will allow for design that is capable of connecting people within their lifestyles, and in turn will result in socioeconomic support in people's communities and environmental resilience over time (Manzini, n.d.). Through researching the topic, a particular network was identified for having created a food delivery system that is known for its efficiency and resilience over its many years of existence. Founded in 1890 in Mumbai, the network was meant to incorporate the lives of the Warkari, the local population, and the influx of people who were currently migrating into India for work (Roncagila, 2013). The network did this by improving the communication and the connections between each social group. Furthermore, a system was designed to balance the pillars, allowing multiple communities to foster healthier choices.

Pillars within a Community

For most of history, Northern-European designers have taken a user-centred approach to designing (Sanders & Stappers, 2008). Sanders and Stappers (2008) have called this an *expert perspective*, where design is based more on designers' opinion. The design is developed based on standards (e.g.ergonomics and human averages) and regulations stated by laws. However, it is not designers who will be making use of their design. Instead, it will be the people most directly affected by it, also known as stakeholders. By including immediate stakeholders in the design process, it will result in a more personalized outcome, with more stakeholder issues and concerns to be heard (Imbesi, 2016). Manuel Castells studied from 1996 to 2001 about society as a network (PHY ORG, 2016). He stressed the importance behind the structure networks and the communication in between, and of being able to determine the similarities and differences between them to highlight how they can best communicate and what their pitfalls may be.

An example of a group of people that has been able to do this for 126 years (as of 2019) is the Warkari. Warkaris were formerly isolated from other communities and live solely in Mumbai (Pinch, 1996). Today, they are revered as saints and hold traditional knowledge such as culinary dishes. These dishes are made without alcohol or meat and make use of local ingredients (Pinch, 1996). The Warkaris' talent and traditional culinary knowledge were recognized by a local man named Mahadeo in 1890. He created a system to deliver lunches to citizens' homes and workplaces across Mumbai. He started with 500 men. Warkari men worked as cooks and locals completed the deliveries (PHYS ORG, 2006). Locals were illiterate so the system needed to accommodate this. It also needed to be efficient to accommodate the increasing number of workers. The food that the Warkaris made traditionally was packaged in metal containers and labelled before being delivered over the course of two hours across Mumbai. Once they were all delivered, the local workers went in reverse order to collect the used containers and return them. The service was directed at feeding workers

during lunch when they otherwise did not have access to food during the day, such that they would only eat in the morning and evening each day (Roncagila, 2013).

Discussion

Mahadeo started a conversation and a connection between several communities in Mumbai. Although connecting different social groups was implicit, he was able to satisfy the pillars. Mahadeo's design relies on efficient communication between each community.

Each person's life is complex and difficult to unravel from an outside perspective. In order to have mutual understanding, communication needs to happen with more ease. This allows for specific pillars to be identified. Similarities and disparities between groups can then be compared to best support as many people as possible. Through this support, people will be free to make the decisions required to support their own future growth and that of their community. As stated by Sanders & Stappers (2008): people who are empowered to engage in their future will eventually become more aware of the products and services around them and continue to make informed decisions in the future.

In the described case, communication allowed for the preservation and sharing of culture. By using the Warkaris' skills in cooking, they were able to exercise and share their traditions, keeping them connected to everyone else (where otherwise they would remain completely isolated from others).

The service was also free, resulting in larger changes. Typically, residents would eat only one or two large meals a day, however this service encouraged citizens to eat several smaller meals a day. Eating this way has been proven to be healthier for both people and the environment (Rosi et al., 2017)

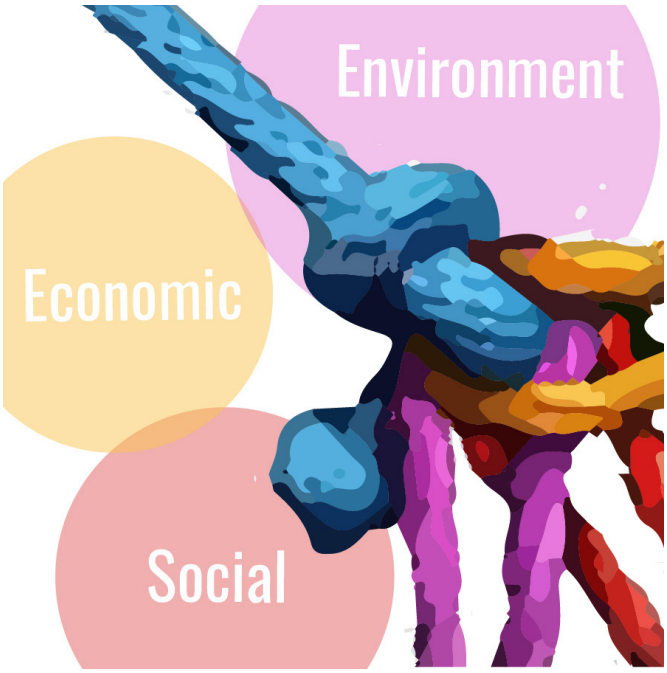
The organization has also been allowed to grow. As of 2007, deliveries are increasing in number by about 15 new clients a month. With the introduction of fast-food services, the local population has kept its tendency towards this lunch service (Roncagila, 2013). Dabbawallahs today have been showing interest in expanding the business with upcoming technology such as apps for making one-time deliveries and giving people the option to order groceries and branded merchandise (PHYS ORG, 2006).

With the support received through communication, people have been able to prosper through the years by making collective decisions. As the workers and all the communities have been given some sense of ownership, the system has taken its own name. Over the years, the people working in this system have come to be called Dabbawallahs (Roncagila, 2013).

By approaching situations today with the goal of working with communities to identify environmental, economic, and social pillars, it is possible to draw connections to what is most important to people and create a collaborative atmosphere where people are involved for generations.

Table 1: Pillars within the Mumbai Community

Environmental	Economic	Social
- Little infra-structure for travelling	Locals: - Poor - Unemployed - Illiterate Migrant Workers: - Minimal pay - Saving/Sending money to family members Warkari: - No wage	Locals: - Keep to families - Stay home most of the day Migrant Workers: - Separated from family Warkari: - Small community - Revered by local population - Isolated from other communities



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SOPHIE NAKASHIMA

Achieving Culturally Inclusive Design for Social Innovation in Indigenous Communities

DESIGN FOR SOCIAL INNOVATION - INCLUSIVE DESIGN - CULTURALLY INCLUSIVE - INDIGENOUS CULTURE

This paper discusses how design for social innovation employs culture to solve social issues and can create more culturally-inclusive solutions for indigenous communities. Many current design processes, such as Human-Centred Design, are driven by Western values. This prevalence of Western culture in the design approach often leads to exclusion of minority cultures that hold differing values, such as Indigenous culture (Akama et al., 2019). By acknowledging the importance of culture throughout the design process, the role of design shifts from prescriptive and imposed, to a means of empowerment. By reflecting on an example of social innovation involving the Whanganui River Settlement Claim, the role of culture in design for social innovation will be highlighted.

Human-Centered Design vs. Co-Design

In many parts of the world Indigenous communities suffer from the aftermath of colonialism, often facing alienation within post-colonial society (Akama et al., 2019). The very dominant Western perspectives inform the design and development of modern societies and perpetuate the exclusion of minority cultures such as Indigenous cultures. This is evident in the Human-Centred Design (HCD) process (Akama et al., 2019). Akama et al. (2019) argues that HCD is based in "industrialized, Eurocentric origins" (p. 1). In HCD, the concepts of universal design as well as empathy are key elements of the design process. Universal design, according to Kasulis (as cited in Akama et al., 2019), deconstructs design to create universally relatable and understandable solutions, regardless of the user's background. The result, however, is a design outcome that is "culturally neutral, objective, interchangeable, and a-geographical" (Akama et al, 2019, p. 5). As Akama et al. (2019) argue, "Designers are not culturally or politically neutral… our sociocultural values inevitably manifest through our designing" (p.9). As individuals, we have our own knowledge, cultures, and other experiences that guide our perceptions of the world, as well as our approach to design. Despite any attempts to achieve universal design, the views of the designer will always influence the solution. Similarly, empathizing with the user, a common practice in HCD, fails to account for the background of designers and how their own experiences may filter their understanding of the user's perspective (Akama et al., 2019). In regard to designing with Indigenous communities, once designers realize their lack of expertise in the problem space, this experience humbles designers and creates more space for ideas and action by the Indigenous community. As a result, designers are led to adopt co-design processes, encouraging the user to play a key role as a contributor to the solution. Cultural awareness helps designers remain cognizant of their own culture and influences. It also elevates the importance of the indigenous community and their cultural knowledge as vital contributors to the design process (de Bruin & Read, 2018). Therefore, co-designing in design for social innovation acknowledges culture as a core design consideration and can empower indigenous communities (Akama, et al., 2019). This is demonstrated in the Whanganui River Claims Settlement case.

The Whanganui River Claims Settlement

The *Whanganui River Claims Settlement* addressed the exploitation of the Whanganui River, a river in New Zealand that held spiritual significance for the hapu and iwi peoples, the local Maori (de Bruin & Read, 2018). De

Bruin and Read (2018) outline how both the Maori and the government worked together, across their contrasting cultural frameworks, to understand the significance of the Whanganui River. Through discussion and negotiation, the Whanganui River was granted personhood, and gained the associated rights. Even if the Aotearoa/New Zealand (A/NZ) government values are based in Western ideologies, the government recognized the exploitation of the river, and the accompanying severe environmental impacts. Thus, they finally considered the values of the Maori people and how this could be applied to the problem. The Maori share a close relationship with the land, the natural world being a key aspect of their culture. The Hapu and Iwi people see this river as part of themselves. Through this settlement, the A/NZ Government gained insight into its own value system and its shortcomings, and the Maori were given the opportunity to share their values and perceptions of the environment. Through this process, the two parties were able to integrate their cultures and value systems to create a socially innovative solution that was sustainable for the Whanganui River, culturally inclusive for the Maori, and integrated into existing societal infrastructure.

A Means of Empowerment

It is through design that social innovation has the potential to create more inclusive futures for Indigenous communities. By embracing local culture as a natural and inevitable aspect in every design problem, process, and solution, design for social innovation can open up discussions on the chasms between cultures and create awareness of how design can be used to bridge these gaps. This approach also gives the community the opportunity to contribute to a design problem, and ultimately, give the Indigenous people agency over their own affairs (Henry et al., 2017). In Canada, design for social innovation with Indigenous communities can also play a role in Reconciliation (Barberstock, 2017). Design for social innovation through co-design processes can provide the Indigenous community with the opportunity to give their input on community issues and embed their values into the solutions. As a result, design for social innovation can become a platform for Indigenous communities to educate others on their culture and values, and to advocate for their own rights.

Culture plays a leading role in social issues, and it is necessary to embrace this when designing for social innovation. When culture is a major component of design considerations, the user becomes a key contributor, encouraging a co-design process. Design for social innovation can be used in Indigenous communities to create culturally-inclusive solutions. By giving Indigenous communities agency over social issues that affect them, they are empowered to create their own change. As different cultures are invited to participate in the design process, this may lead to popularization of non-western forms of design thinking. This diversification of the field of design is crucial in matching the reality of the diversity of users and will play an important role in advancing cultural inclusivity in design for social innovation.

"Cultural awareness helps designers remain cognizant of their own culture and influences."

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STEPHAN TZOLOV

Can Design Methods for Social Innovation Improve Smart Cities?

SMART CITY - SOCIAL INNOVATION - WELLBEING - URBANIZATION - DESIGN PROCESS

A smart city is a term created in relatively recent years to describe "a municipality that uses information and communication technologies to increase operational efficiency" (Digi.city, n.d., para. 6), better connect people to information, and better the quality of life for citizens and visitors (Albino, 2015). This exploratory paper investigates where smart cities incorporate elements of social innovation that address common problem areas, such as education, healthcare, and population inclusivity. The industrial design practices used in solving these problem areas will be identified. By analyzing current innovation areas and design methods used there, suggestions will be made for future incorporation of social innovation within smart cities.

Among the countless target areas that the leaders of an urbanized smart city would consider improving, there are a few common social categories that are frequently focused upon. These categories are education, healthcare, and population inclusivity due to the inherently social element of human wellbeing (Caragliu, 2011). Human wellbeing, in the form of our mental and physical health, is dependent on the people around us and the care they provide either emotionally within a community or culture, or medically by professionals (Caragliu, 2011). This is why leaders and policy makers invest large amounts of resources into gathering data on the needs of the citizens in socially-dependent settings, such as hospitals, schools, varying cultural communities, etc. (Talari, 2017). For example, hospitals gather extensive information on their patients and very systematically categorize it to be analyzed later and develop solutions (Talari, 2017). This can include resource distribution based on common illnesses, demand for healthcare workers, and overall satisfaction of patients (Álvarez, 2012). All of this, and more, is devised by means of social initiatives to improve physical health of the population as demands and needs change. The same principles are applied to mental and social health (Talari, 2017), both of which can be largely impacted by our regular social settings, such as school and the community around us. The educational system in many smart cities constantly gathers feedback from instructors and students for quality control and to adapt to the ever-changing needs of its citizens (Nam, 2011). This overlaps with community-based wellbeing, as well, where cultural inclusivity is a necessity. A big focus of culturally diverse cities is to promote said diversity, which often brings together heritage, art, religion, media, etc.

When observing how designers, who are innovating for these social settings within smart cities, approach the given problems, there is a common theme: the user. Much like traditional product design, where the final product is always tailored and created with a specific end user and their needs in mind, the same can be said for design for social innovation (Norman, 2013). In this sense, identifying who will ultimately be using your product from the perspective of product design is closely comparable with accurately identifying which social setting is being designed for in social innovation. Additionally, when designers are working with the needs of a social group, it is never in anyone's interest to make assumptions as to design for problems they do not have or improperly approach the ones they do. The best approach is to gather user data or feedback via user testing within sample groups of the target market (Norman, 2013). This is directly applicable to social innovations for smart cities. The needs and problem area of the user become much more evident and accurate in this manner and

is a common method of gathering information for large-scale design problems, such as medical care for a city's population (Álvarez, 2012). As discussed in "Conceptualizing a Smart City with Dimensions of Technology, People, and Institutions" (Nam, 2011), smart cities are required to adapt themselves to the user needs and provide customizable solutions. Thus, effectively identifying the user, as well as their needs, is suggested as being fundamental in social innovation in addition to product design.

Upon researching where social innovation is incorporated in advancing smart cities and how design practice is used to do so, it could be argued that a broader application can be implemented. For example, the obvious and most common places social initiatives were found in places that were heavily dependent on other people, like healthcare and education. However, if the same principles of social problem-solving were incorporated in a wider scope of applications, such as transportation, waste management, or resource management, there could be a significant improvement in operational efficiency due to the uniting variable: the user, which is the same in all cases. This is in opposition to the current method where the governing power usually decides objectively what is best for citizens of their respective cities due to assumptions based on cost and data, as opposed to more personal and social factors (Albino, 2015). Elements from the product design process, as was applied to more social areas, can also be applied in more infrastructure-based components. Practices such as focus groups, population sampling, behavioural observation, etc. can be attributed once more and could result in a more educated solution that better satisfies the needs of the user/population.

Smart cities very actively incorporate elements of traditional product design process within their initiatives for social innovation. Upon researching the area, it became evident that the main areas focused on were those that were already heavily dependent on social causes. However, when looking to the future, it may prove beneficial, or at least provide a different perspective on possible solutions, if the methods of social innovation were also incorporated in more infrastructure-based problems within smart cities. This could ultimately prove to have more effective and targeted solutions due to the involvement and feedback of the citizens it is being designed for.

"If the design methods we use in traditional product design can be applied to social innovations in smart cities with great success, they should be able to be applied anywhere in a city."

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SUNGHYUN LEE

Social Innovation in Suburbs Through Designing Social Infrastructure

SOCIAL INFRASTRUCTURE - NORTH AMERICAN SUBURBS - SAFE SPACES - PUBLIC PARKS - PUBLIC TRANSPORTATION - SOCIAL SEGREGATION - SOCIAL INCLUSION

In modern society, provision, and access to the network of infrastructure have become crucial for everyone to function (McFarlane & Rutherford, 2008; Graham & Marvin, 2001). This has made some sectors of society especially vulnerable to poverty and crime, aggravating the phenomenon of social segregation (Graham & Marvin, 2001). In North American suburbs, lack of consideration in design has fostered gentrification around the central neighbourhoods of cities and created a social demographic problem that impacts us to this day (Lo et al., 2015). The purpose of this paper is to discuss how to foster inclusion and to aid in the fight against segregation through designing social infrastructures when designing for social innovation. This topic will be explored by reflecting on case studies undertaken by other researchers and with a reflection on the author's experience in integrating into new societies.

Between the 1920s and 1960s, urban infrastructures such as electricity, gas, telephone lines, broadcasting and transport grids became ubiquitous over unprecedented distances through progress in science and technology (Graham & Marvin, 2001). Distance became less of a barrier to interaction, American cities decentralized physically, introducing the idea of the modern suburb (Graham & Marvin, 2001). Modern North American suburbs were designed under the influence of neoliberalism which prioritizes marketization, privatization, and competition (Lo et al., 2015). This move has affected the allocation and distribution of resources among different groups of people, making public transportation one of the many problems in the suburbs (Graham & Marvin, 2001). As Graham and Marvin (2001) explain, suburbs are located remotely from the city center, but public transportation is lacking in connections to the city, and the problem is more apparent in poor neighbourhoods. One example of the issue, presented by Winner (1980), can be found in Long Island, a neighbourhood designed to be permanently isolated from public transportation. In this neighbourhood, the parkways and highway bridges are designed to be lower than the height of buses. The result of this design makes travelling difficult for the population without access to a car. Another problem that affects a majority of the population in suburbs is housing affordability. According to Lo et al. (2015), low-income households and recent immigrants in Toronto suburbs are living in accommodations they cannot afford because the supply of rental housing is insufficient to meet the needs of the growing low-income population. As a result, highly-skilled workers reside in gentrified, more expensive neighbourhoods and less-skilled workers are pushed to remote and cheaper locations.

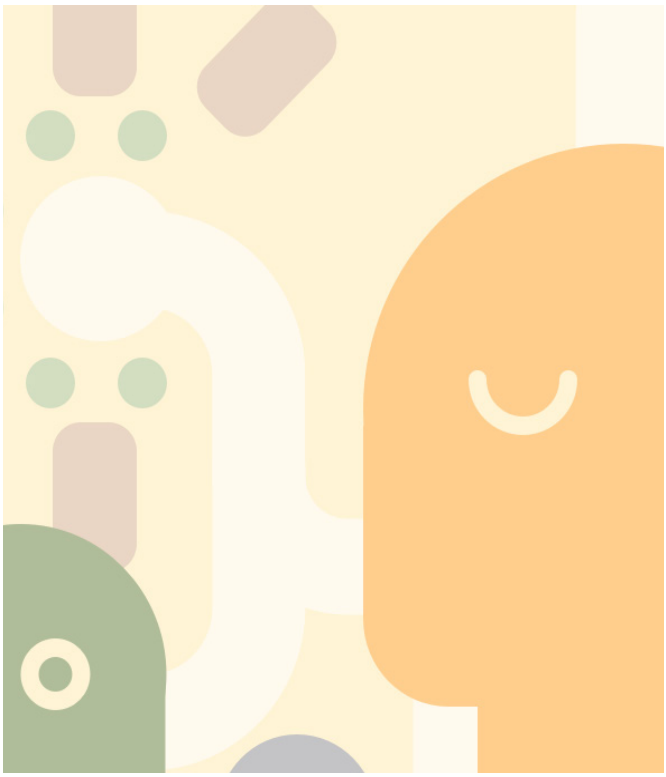
In the development of suburbs, the influence of neoliberalism has gentrified the city, fostering segregation. However, Klinenberg (2018) argues that cities can encourage interaction within society and reconnect divided communities through innovation in social infrastructure. Around the world, cities have invested in social infrastructures to encourage regeneration. Through design for social innovation, a process of recombination of existing assets to achieve socially-recognized goals (Manzini, 2015), cities have created safe spaces and public gathering places utilizing existing resources.

In the past, especially in America, abandoned buildings in poor neighbourhoods were used by the police to justify the increase of force in poor regions (Klinenberg, 2018). The broken windows theory by Kelling & Wilson (1982) states that abandoned properties in a neighbourhood are

perceived as a sign of neglect. It lowers the sense of obligation to the law, which attracts more destruction and crime. However, as Klinenberg (2018) explains, the reason why abandoned buildings exist is because of insufficient government investment in the area. In his case study of West Philadelphia, the Pennsylvania Horticultural Society started a social science experiment by creating safe spaces. They revitalized the neighbourhood by cleaning and decorating parks and abandoned properties in randomly selected blocks. When the abandoned properties were fixed, gun violence declined by 39 percent in abandoned buildings and 5 percent in vacant lots. These changes in abandoned blocks encouraged residents to socialize in the addressed public spaces. Maintenance and care create safer spaces by giving a sense of ownership to the community, which results in fewer crimes.

Klinenberg (2018) also says that the public gathering place is a social infrastructure that brings people together. These spaces create a common ground, where people from all backgrounds interact together. The author of this article found a sign of common ground in Munich, Germany. The city has numerous public parks, which are connected through the subway and streetcars. Visitors purchase drinks from stores around a park and gather near a river or grass field to talk and play sports. For visitors and new residents of the city, it is an opportunity to get to know the town. Another example of common ground that the author found was in Japan, where every neighbourhood has an open public childcare facility called the children's hall. It offers children, and parents, opportunities to interact as they are picked up. Facilities are equipped with a playground, library, videogames, board games, and sports equipment. Through the provision of social encounters for both children and parents, it helps integrate new members into the town. Common ground is a kind of social infrastructure that encourages inclusive behaviour by providing a space for different social groups to come together.

Around the world, cities have implemented social infrastructure in different ways to address the topic of inclusion and segregation. There are different examples of social infrastructure that have been explored through design for social innovation processes in the urban space with the tools of safe spaces and common ground. Many researchers have agreed that North American suburbs have been shaped through marketization, privatization and competition, which has triggered segregation and exclusion in our society. It has been seen in several examples that, through the utilization of existing infrastructure in suburbs, such connection and inclusion in the community can be fostered through the use of safe spaces and common ground. It is critical that moving forward all future city planning feature infrastructures that support all individuals.



"Social infrastructures are like glues that bring communities together." (Klinenberg, 2018)

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YASMINE RIACHI

How the Design of Social Media Enables Social Innovation

SOCIAL MEDIA - COMMUNITIES - COMMUNICATION - INTERCONNECTIVITY - USER INTERFACE

A symposium held at the Royal College of Art during April of 1976 brought together designers who questioned what design could do for society. A book by Peter Lloyd Jones (1977) called *Designing for Need* presents a collection of papers that were presented at this event where the traditional ideas of design were challenged. Here designers put forth the idea that design could solve more significant issues that plague society, this idea being commonly referred to as social change (Jones, 1977). The importance of social innovation lies in the fact that it enables transformation and growth that the traditional solutions often employed by governments are unable to provide (Urama & Acheampong, 2013). According to Urama and Acheampong (2013), the most critical social issues facing the world today require innovative solutions "that [cut] across organizational, sectoral, and disciplinary boundaries" (Urama & Acheampong, 2013, para. 20). In this regard, social media, enabled by the careful creation of proper User Experience (UX) and User interfaces (UI) can bringing people together, create new communities and serve as a catalyst for social innovation (Dentzel, 2014).

The manner in which the internet and social media in and of themselves are designed creates an opportunity for various communities, groups, and like-minded individuals to become connected (Dentzel, 2014). How these social media platforms, such as Facebook, are designed, for instance, enables them to be catalysts for social change. Facebook is a large website with billions of active users monthly (Facebook, 2004). Reaching all over the world, Facebook and other social media platforms have a similar goal: interconnectivity. Illustrating this, Facebook's mission statement is, "Give people the power to build community and bring the world closer together" (Facebook, 2004, para. 22). The way Facebook is designed, using computer algorithms and networking, makes it easier for like-minded individuals to discover other people who share the same values, ideas, or beliefs as them and allows for peer education and collaboration (Ram & Liu, 2018).

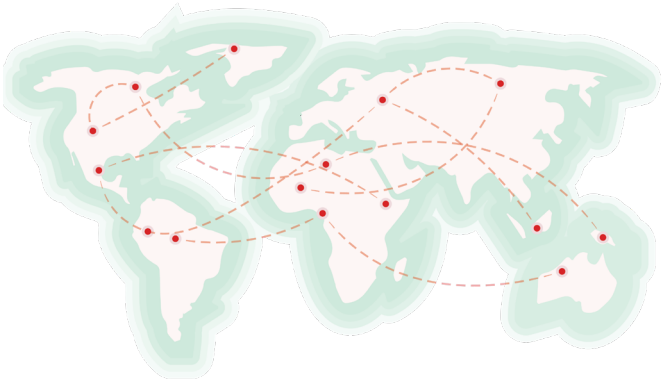
Facebook is designed in a way that encourages people to connect and communicate the minute they open the website. Its website states that: "A high-quality onboarding experience can lead to conversion rates above 90% and encourages people to become more engaged and profitable" (Facebook, 2019, para. 1). Furthermore, in 2010 Facebook released a new UX design that allows everyday people to create *Community Pages*. These pages can be used for anything, with little moderation happening (Grosser, 2011). The design decision to allow any user to create a page allowed Facebook to act as a gathering point for even some of the most niche of interests. People were encouraged to like pages that related to their interests and hobbies (Grosser, 2011). The importance of this lies in the idea that social design initiatives should be facilitated by designers but created by citizens. One way for designers to do this is to create platforms for social innovation (Manzini, 2015). Speaking on a fundamental level, Facebook had designed a space that allowed users to design their own spaces within the greater Facebook sphere. By creating this open platform, Facebook allows information and ideologies to be shared, which can bring about change in ways that the world has never experienced before. Sites like Facebook permit people to gather and discuss change, opening the possibility for communication in places where discussing this sort of topic may be discouraged or even illegal.

It is essential to mention the potential for these sites to

be abused (O'Sullivan, 2019). Since Facebook and social media are relatively new, learning how to monitor and prevent mistreatment is often done on a trial-and-error basis (O'Sullivan, 2019). Stories like that of the Russians using social media to affect the outcome of the 2016 US elections show how easily these sites can be abused (O'Sullivan, 2019). In situations like these, Facebook is able to look to the past misconduct and attempt to create safeguards to prevent similar situations in the future (O'Sullivan, 2019).

To illustrate that social media can be a catalyst for social innovation we can look to the Middle East during the early months of 2010 (The Editors of Encyclopaedia Britannica, 2019). The Arab Spring was a series of uprisings in response to the living conditions and oppressive leadership in various Middle Eastern countries (The Editors of Encyclopaedia Britannica, 2019). It all started with one man in Tunisia who lit himself on fire after being mistreated by the government, creating tension among the population (2019). Social media allowed citizens to organize and mobilize, and they successfully overthrew their government and held a free election to choose council members all in the span of a week (The Editors of Encyclopaedia Britannica, 2019). Although the Arab Spring did not bring about an immediate improvement in standard of living, it can still be considered as a "catalyst for long-term change" (Manfreda, 2019, para. 10). This Revolution was directly affected by citizen's ability to connect and form online networks that were critical in organizing activists in addition to allowing citizens to speak freely and provided a space for civic engagement (Brown et al., 2012).

The way Facebook is designed may promote the interconnectivity of its users. It may act as a gathering place for people of various backgrounds and social status to speak freely with little regulation from governments and organizations. The way it has designed its community pages and methods of categorizing various users' interests allows for people to easily find groups and communities that have the same ideologies as themselves. These communities can act as hubs for social innovation that start with the people who are experienced in the problems in society. The use of social media, when used to bring people together in unfavourable circumstances, can promote change since it changes society and culture for the better by allowing the average citizen to have a voice. This can lead to revolutions like those that were seen during the Arab Springs, but it is important to keep in mind that abuse of platforms is a real possibility.



"The manner in which the internet and social media in and of itself is designed, creates an opportunity for various communities, groups, and like-minded individuals to become connected."

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Contributors

AAKRIST DONGOL
Design Philosophy Design: deriving knowledge from the experience or environment of self, an individual, or a community to cultivate a certain outcome for the user.
Design Interests Fashion design, sustainability, human performance, and longevity (sustainability), yoga and meditation, and philosophy.

ALURA SUTHERLAND
Design Philosophy Creativity is exponential. The more you use it, the more you have. It would be selfish not to share this abundant gift with the world.
Design Interests Creativity and Learning, Sustainable Design, and Community and Wellbeing.

ANDRES VASQUEZ VALIENTE
Design Philosophy Create a harmonious relationship between users, businesses, and the environment.
Design Interests Music, business, and graphic design.

BASHIR SAIDI
Design Philosophy My design philosophy revolves around simplicity and elegant designs.
Design Interests Bike designs and household items.

CALLUM GONCALVES
Design Philosophy I believe that good design is human-centred and solves problems. Understanding the user is the foundation for the design process.
Design Interests 3D-Printing, Design for Manufacturing, and Computer-Aided Design.

CATHERINE CAETANO-MACDONELL
Design Philosophy Design should be a reflection of the user at their best and support them at their worst. Good design communicates and evolves with the user.
Design Interests Sustainable system design that supports the user's lifestyles.

CHIMZURUOKE NEBO
Design Philosophy Design is a tool that should be used with care, caution and empathy. It can define the path and pace at which a system or society flows.
Design Interests Product Design with a focus on system and application design.

DENISE PONG
Design Philosophy Empathy is the bridge between designers and users.
Design interests User experience Design, and Service Design.

GABRIEL LAUDISA
Design Philosophy I believe that compassion and respect for life should be the driving force behind all human activity, including design.
Design Interests Experience design, interface design, vehicles, and mobility.

HEIDI EVANS
Design Philosophy I believe in taking an empathetic approach to design and using this approach to evoke meaningful change through design.
Design Interests Social Design, Exhibit Design, and Outdoor Product Design.

ISABELLA HALL
Design Philosophy Isabella is a 4th-year Industrial Design student. For her thesis project, she is studying social design, and more specifically, ways to collaborate with Inuit in Canada. She is interested in how designers can use their skill sets to facilitate co-design sessions with people of different cultures. The key focus words in her final project are community, communication, collaboration, and co-design.
Design Interests Social Design, Community, Communication, Collaboration, and Co-Design.

JORDAN LINTON
Design Philosophy I like clean and simple design solutions, while at the same time adding unexpected humorous aspects.
Design Interests UI/UX, digital experience design, consumer electronics, vehicle design.

JUNESOO LEE
Design Philosophy Design is never perfect. People's expectations and desires evolve over time and sometimes design evolves to meet these changes. As such, a designer's work is never done.
Design Interests UX Design, Production, and Manufacturing.

KAJ HALLGRIMSSON
Design Philosophy Seeks to create simple and intuitive products that fit the lifestyles of their users through democratic design decisions informed by discussion and exploration.
Design Interests Culture and Design, Aesthetic Considerations, Innovation, and Manufacturing.

KATHERINE BARRETT
Design Philosophy Design should be new and exciting, creating a better experience for the user and a better impact on the world.
Design Interests Design Research, Sustainable Design, and Design for Social Innovation.

MEG SCHWELLNUS
Design Philosophy My aim is to design for the people of the world in ways that improve their quality of life
Design Interests Biomaterials, Biomedical Devices, and Human-Centred design.

PATRICK WATT
Design Philosophy Design is a goal-oriented process of developing a product or system that addresses a set of needs or a vision.
Design Interests Entertainment Asset and Character Design, Systems of Incentives, and Vehicles and Mechanisms.

PRAKRITI PRATIJIT
Design Philosophy The purpose of a designer is to collaborate in order to serve the people.
Design Interests Social Equity, Engineering Design, Collaborative Design, and Urban Design.

SARAH ALLAHMORADI

Design Philosophy Upon leaving high school, I was dead set on becoming a Veterinarian. However, due to some luck, I learned that it was possible to build and make this a career. As an aspiring ID, I am able, eager and willing to learn anything within the Industry. I would say I am introverted, but when I have something to say I speak on it passionately and I always try to keep a positive attitude.

Design Interests My ultimate end goal is to work in medical design, a category that I believe to be overlooked by many designers.

SOPHIE NAKASHIMA

Design Philosophy Rich experience and a variety of perspectives are important ingredients in good design.

Design Interests Culture and Design, Speculative design, and Chindogu.

STEPHAN TZOLOV

Design Philosophy I believe design should follow what function dictates. To design without a function or purpose is a waste of efforts.

Design Interests Challenging myself with different design problems where possible.

SUNGHYUN LEE

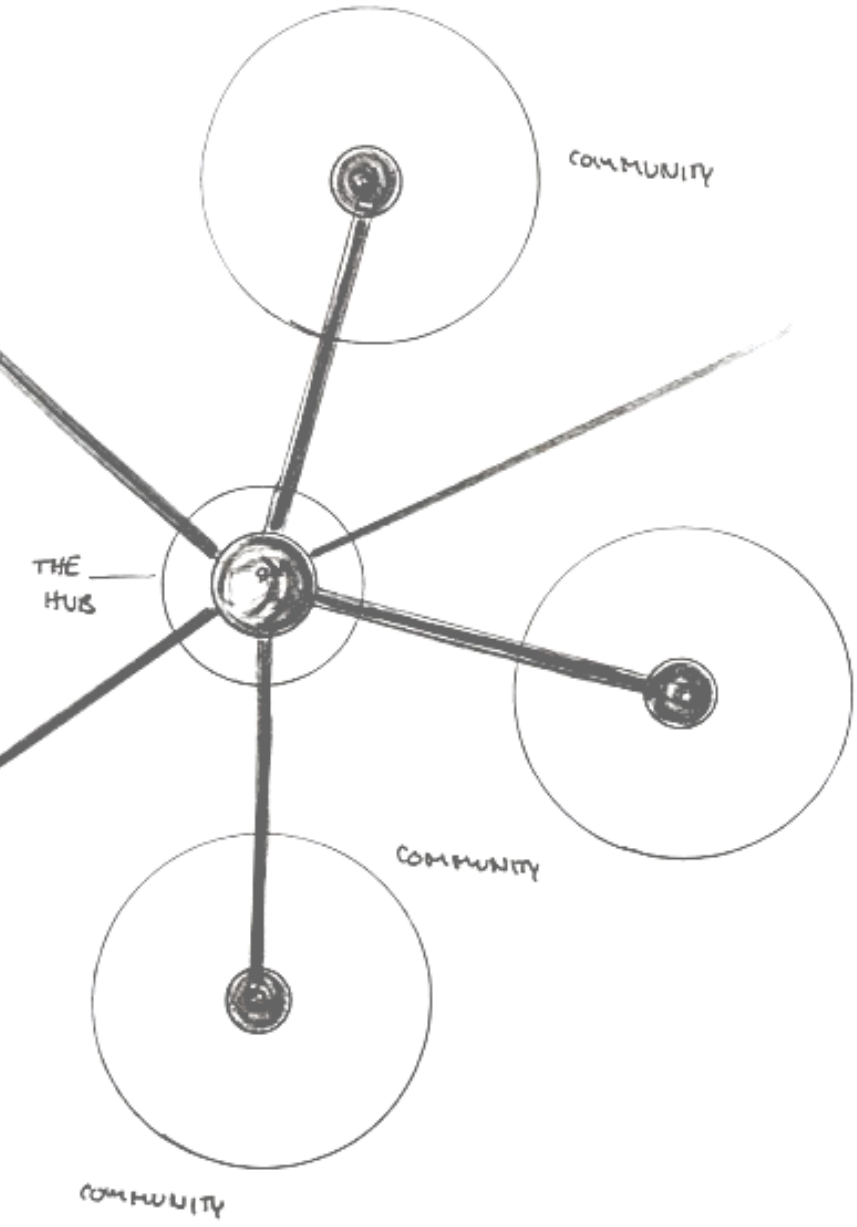
Design Philosophy Cities must be designed for everyone, focusing on citizen's wellbeing and happiness.

Design Interests Design for social integration.

YASMINE RIACHI

Design Philosophy Good design should be unnoticeable. It is the difference between a product just simply working and a product being enjoyable to use.

Design Interests Sporting/Outdoor equipment as well as medical.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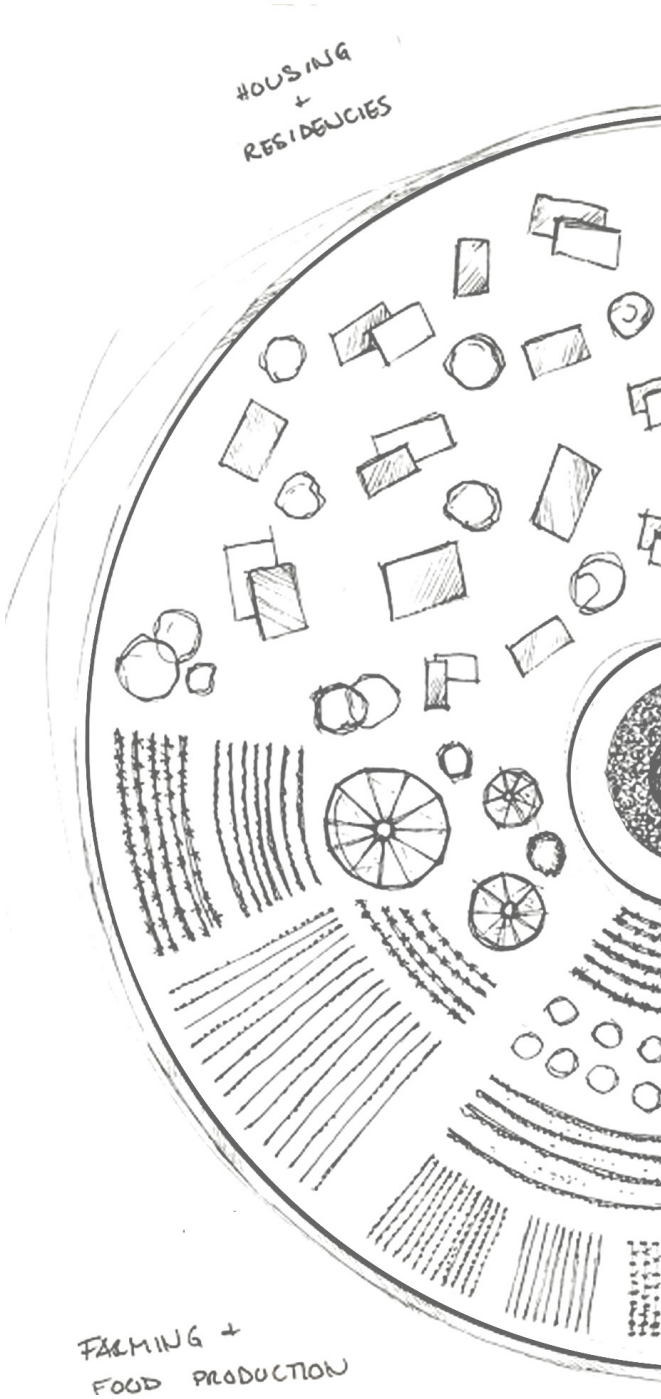
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