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Complex System Design for Social Innovation in Aotearoa

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Abstract

There is a need for large-scale, societal, systems-level transition to a better and more sustainable future (Transition Design, 2018) promoting prosperity for all and protecting the planet; addressing challenges such as poverty, inequality, climate, environmental degradation, prosperity, and peace and justice (United Nations SDGs, 2018). Creating change in a world defined by increasing complexity is difficult, and we face an array of these complex 'wicked' problems (Conway et al. 2017).

In Aotearoa, New Zealand, we need to address these and other 'wicked' problems; particularly in their disparity for women, solo-parent families, Māori, Pasifika peoples and people with disabilities (UNESCO Report, 2018). Especially as a bi-cultural nation with indigenous peoples with significant disparities between Māori and Pākehā and growing gaps in most social indicators (Durie, 1999).

Given the scale and complexity of these challenges, we need to find different ways of thinking, being and doing (Innovate Change, n.d) to address them; in achieving integrative, sustainable and equitable approaches to 'wicked' problems we require multiple disciplines and ways of knowing, seeing, being and acting (Adams, et al., 2019). The central enquiry in this research is in these ways of thinking, being and doing across the disciplines and theories of social innovation, systems theory and thinking, participatory and co-design, and complexity theory and sensemaking. It considers how they are and may contribute to radical, systemic forms of social change and the conditions, these may require, within ourselves as practitioners as well as the systems we are looking to change.

This research started with and was shaped by insights from interviews held with Aotearoa practitioners operating in spaces of systemic change; including social innovators, participatory and system designers, and public policy and wellbeing economy experts. It provides the research direction for evidence, literature and discourse analysis and emerging critical themes and concepts, proving critical for practice and practitioners within an Aotearoa context.

A 'prototype' model is presented intending to enable reflective practice in engagement with and contextualisation of the core concepts, considering the key ways of thinking, being and doing those of us operating in systemic social change need to engage with. It is generated from synthesised insights from interviews, literature review and personal critical reflections and experience as a practitioner; shifting the dialogue from one of 'interdisciplinary' as working together to 'integrated' as being together to contribute more effectively to systemic social change. This can be explored further engaging participatory methods with change agents, practitioners and those with lived experience in systemic change and social innovation.

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INTRODUCTION

Introduction

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It is becoming apparent that there is a need for large-scale, societal, systems-level transition to a better and more sustainable future (Transition Design, 2018) that promotes prosperity for all and protects the planet. This can be seen with the United Nations Sustainable Development Goals (SDGs) for addressing the challenges we face, relating to poverty, inequality, climate, environmental degradation, prosperity and peace and justice (United Nations SDGs, 2018). Creating change in a world defined by increasing complexity is difficult as we face an array of these complex ‘wicked’ problems (Conway et al., 2017).

In Aotearoa New Zealand, we need to address these and other significant social-economic and environmental challenges. A recent United Nations review of human rights in Aotearoa raised concerns regarding poverty, family violence, sexual violence and gender-based violence, child abuse in the family and state care, homelessness, unemployment, and the right to health for people, including mental health (UNCESG Report, 2018). Within these issues, there are significant social disparities experienced by women, solo-parent families, Māori, Pasifika peoples and people with disabilities.

Māori participation falls considerably short of the standards of a fair society, with disparities between Māori and Pākehā being well evidenced, with growing gaps in most social indicators (Durie, 1999). There has been little positive movement in the adverse outcomes for Māori over the last few decades; representing 50% of all prisoner numbers, experiencing low levels of educational attainment, high levels of unemployment, inequitable access to healthcare, decreasing levels of homeownership, low incomes, and higher than average mortality rates (Deloitte, 2018).

Despite Māori often being framed in these deficit terms, there is also strength in and potential for engaging with Indigenous peoples. As their cultural values, and ways of knowing and being, enhance the range of possibilities we have for addressing social and environmental challenges (ANZSOG, 2019; De Bruin & Read, 2018). Ultimately, if we want to change outcomes for and with indigenous peoples, we can only do so by understanding, respecting, and empowering them and their communities (ANZSOG, 2019).

The Aotearoa government has acknowledged that addressing cross-cutting problems such as these, remains a challenge; despite continued efforts, critical social problems have proven intractable (Scott, 2016). Proving particularly difficult to address effectively with conventional approaches, these types of issues are sometimes called ‘wicked’ problems, meaning they are an issue that is highly resistant to resolution (Australian States Commission, 2007).

Social innovation is recognised as important in addressing these complex, ‘wicked’ societal challenges (De Bruin & Read, 2018); this thesis explores how so.

It broadly investigates the ways we may come to understand the nature and the context of 'wicked' problems; the social disparity in how they are experienced and how social innovation is and may contribute effectively to systemic social change.

“I think social innovation can do lots of different things and I think we want to play in what level and extent of bold change, or big change, we want to see; it is going to ask for a difference of being and doing and thinking and, like, convening”

This research is based on the premise that given the scale and complexity of the nature of these challenges, we need to find different ways of thinking, being and doing (Innovate Change, n.d) to address them. To achieve integrative, sustainable and equitable approaches to 'wicked' problems we require multiple disciplines and ways of knowing, seeing, being and acting (Adams, et al., 2019).

This thesis posits that we all have a responsibility to challenge our paradigms, world views, mental models and mindsets; as well as those of others (ANZSOG, 2019). It is in finding leverage in these places that we enact systemic change, building the capability to continually change our personal and collective ways of thinking, being and doing (Senge, 1990; Meadows, 1999 & 2008). These ways are critically considered by understanding the disciplines and theories in terms of their principles, mindsets, key concepts and approaches.

The main enquiry of this research is to explore these ways of thinking, being and doing and how in doing so they can build social capability and capacity for ongoing resolution and resilience. Taking an interdisciplinary approach, it investigates fields and practices that are proving helpful contributors to systemic change; social innovation, systems theory and thinking, participatory and co-design, and complexity theory and sensemaking. Each of these disciplines is, in some way, proving helpful for systemic social change and for informing social innovation practices. This research is unique in that it aims to consider all of these disciplines together, shifting the dialogue from one of 'interdisciplinary' as working together to 'integrated' as being together to contribute more effectively to systemic social change.

The thesis starts by outlining the research approach and introducing definitions for 'wicked' problems and systemic change, providing a position to consider the various disciplines and their contributions to these critically. The core chapters discuss the various disciplines, theories and practices: 1) social innovation, 2) design for social innovation and systemic change, specifically exploring participatory and co-design, 3) a systems orientation, exploring systems thinking, theory and dynamics and 4) complexity theory and sensemaking.

Following this, some critical themes and concepts for change have emerged that do not relate to a specific discipline per se; instead, they inform and

influence all of them. These include social justice and dealing with disparity, intersectionality, trauma and adversity, tangata whenua – indigenous peoples and knowledge systems and seeding the conditions for change. The thesis concludes by outlining a potentially helpful frame for considering the key ways of thinking, being and doing that have emerged within this research.

This research assumes the reader has a reasonable level of awareness of these practices, systemic social change and the cultural context of Aotearoa; as such it does not provide an explanation of them. Instead, it attempts to critically consider vital concepts that emerged in the relationship between my practice, the practitioner interviews and relevant literature.

Research Approach

The approach in this thesis is one of ‘research about design’, in that it considers fundamental concepts of design and ‘designerly ways of knowing’ to extend these theoretically and expand the practice of design (Frankel & Rancine, 2010). It aligns with a position of design research as systematic enquiry, goal and knowledge directed and communicable by locating findings within a framework for understanding (Archer, 1981, as cited Frankel & Rancine, 2010).

This framework is intended to explore the paradigms – the ways of thinking, being and doing that may enable us to approach ‘wicked’ problems in socially complex ways, for systemic change. It explores the disciplines and theories in terms of their:

- ontology – how we construct and understand the nature of reality;
- epistemology --the relationship between the knower and what can be known;
- axiology – our values and what we do and are willing to believe is true; and
- methodology – what are our appropriate approaches (Cram, 2017, Chilisa & Kawulich, 2012).

Crucial to our approaches as they are in and of themselves forms of interventions in people’s lives, our designs affecting the way people are able to act in the world (Hagen, 2011). Therefore it matters deeply the philosophical perspectives and approaches that we engage matter deeply.

“[to create change, we need] a set of principles, not a defined process or structure.”

Importantly, while this thesis includes methodology and approaches as ‘our ways of doing’, it is not exploring specific activities or how to ‘do’ them, nor attempting to create an integrated model/process for interdisciplinary practice. Instead, it critically considers the philosophical underpinnings of methods and disciplines, their implicit intents and goals, and related concepts by breaking them down into their principles, processes and tools (Blomkamp, 2018).

Research questions, aims and method

[Figure 1]

Research framing: Disciplines and Themes

This research set out to ask three high-level questions of the disciplines:

- How are or may the disciplines contribute to addressing 'wicked' problems and systemic social change?
- What are the key and new ways of thinking, being and doing within and across the disciplines for interdisciplinary social innovation for systemic change?
- What does this mean for us, specifically within an Aotearoa context?

As such, the aims of this research were to:

- critically explore and understand the key disciplines in terms of their contribution to systemic social change
- explore the integration, opportunities and potential conflicts that the disciplines offer to interdisciplinary social innovation for systemic change, and
- consider and position findings within an Aotearoa context

Specific research methods included: semi-structured interviews with practitioners working within systemic social change disciplines to understand current practice and perspectives; and a review of current literature to provide a critical and broad overview of the identified disciplines considering paradigms, theories, concepts, principles and practices. The interviews were transcribed and thematically analysed, alongside the literature within and across the disciplines.

Nine semis structured interviews were held at the beginning of the research to validate and iterate the initial framing, generate content for analysis and provide direction for the research process. This involved practitioners in social innovation and social impact, including a Māori and Pasifika practitioner; public policy in family and sexual violence; values-led policy and wellbeing economics; and participatory and system design.

[Figure 2]
Research inputs and process.

The research was shaped and iterated from these interviews, for example:

- The original research framing included economics and public policy and trauma-informed practice as discrete disciplines to be included; however, insights from interviews did not validate these as critical for the research questions and objectives.
- Trauma and trauma-informed practice needs to be broadened to consider adversity and toxic stress and is not a discipline in and of itself
- Critical in an Aotearoa context is that fundamental system and paradigm shifts required for and with Māori and engaging with indigenous peoples and knowledge systems is vital yet fraught
- Complexity theory warranted more detailed analysis, and intersects with but is not the same as systems thinking
- Focussed and identified the critical research, literature and discourse needed to explore within and across the disciplines.

Thematic analysis was used to identify, analyse, and interpret patterns of meaning (themes) within the qualitative data; it is used here as it is a method that can be applied across a range of theoretical frameworks and research paradigms (Clarke & Braun, 2016) The aim is not to summarise all the data and content, but to identify and interpret key features as guided by the research questions. The 'codes' and 'themes' that emerged from the interviews and the literature were physically captured (post-it notes) for visual or spatial analysis in 'affinity mapping'. Affinity mapping or diagramming is a method for visually mapping out 'thinking' to find common aspects between ideas and meaningfully cluster them (Atasoy & Martens, 2016). The literature review is presented within each section, interwoven with direct quotes from participants to relate to the insights that have shaped this research.

[Figure 3 and 4]
Photos of research insights and analysis

This research takes a constructivist and interpretive paradigm, in that it is focussed on understanding the world as it is experienced; it is phenomenological, assumes there are multiple socially constructed realities, and that the nature of knowledge is subjective and that 'truth' is contextual (Chilisa & Kawulich, 2012). Concepts within 'practice-led design research' position practice as the location, starting point and means of research, in that practice informs knowledge, which in turn informs practice (Hobbs, et al, 2010, as cited in Hagen, 2011). As such my own personal practice and experiences serve as a critical input and analysis lens; embracing the subjectivity of knowledge and experience, rather than objective and verifiable conclusions.

The insights from this research have been synthesised in to a framework, inspired by the Yale School of Management education model of 'systems change' as an approach that embraces complexity with an action-oriented change mindset (Papi-Thornton & Cubista, 2019.). It is intended as a 'prototype' framing to enable reflective practice in engagement with and contextualisation of the core concepts.

The act of 'making' this framing is an integral part of the research approach, as a generative, reflective and critical thinking tool for developing and resolving the complex nature of the research topic and findings. Being It is a form of 'research by design', in that it is both a 'making' discipline and an integrated frame of reflection and inquiry (Friedman, 2000, as cited in Frankel & Rancine, 2010).

Wicked Problems

Rittel and Webber (1973) formulated the 'wicked' problems concept and approach in the 1960s (Buchanan, 1992) to describe emergent policy problems that were not resolved effectively by conventional models of policy analysis (Peters, 2017). In which this they sought an alternative to a linear, step-by-step model of the design process being explored at the time (Buchanan, 1992).

'Wicked' problems are systems problems, permeated by social dynamics (Transition Design, 2018). They operate in complex, adaptive systems, in contrast to the mechanistic mental models and approaches that have traditionally dominated our ways of thinking (Chapman, 2005). These challenges are unable to have a definitive, stable problem identified (Australian States Commission, 2007), and so there are perhaps no definitive or objective 'solutions' (Rittel, 1973).

Roberts (2000) posits that 'wicked' problems are recognisable as the search for solutions is 'open-ended', with those who have a stake in the problem and its solution advocating for conflicting solutions. They may compete with one another to frame 'the problem' in a way that directly connects their solution to their preferred problem definition and that the numerous parties come and go, fail to communicate, or otherwise change the rules by which the problem must be solved.

'Wicked' problems have a high degree of social complexity, involving multiple actors with opposing agendas, and value sets. They straddle disciplinary boundaries, require numerous interventions over significant periods of time and need sustained and systemic changes (Transition Design Seminar, 2018). Due to these complex interdependencies, the effort to solve one aspect of a 'wicked' problem may reveal or create new ones (Olsson, 2012) and solutions tend to focus on symptoms, rather than underlying issues (Stroh, 2015). As the growing problem of unintended consequences shows, command and control methods are incapable of coordination over any significant period (Chapman, 2015).

These 'wicked' problems operate in social systems; as such, our responses need to be as well (Australian States Commission, 2007), involving effective collaboration to build a shared understanding about the challenge, and commitment to possible solutions (Roberts, 2015). Often, the barrier to addressing a 'wicked' problem is not just that people cannot agree on a solution, but that they cannot even agree on what the problem is (Transition Design, 2018).

It has also been argued that the concept of 'wicked' problems preceded the development of complexity theory; as such, it may prove more helpful to explore them as characteristics of complexity (Peters, 2017). In fact, the drive to definitively define and solve problems as 'wicked' and insolvable may reduce our ability to respond; when they simply do not respond to conventional approaches. Instead, they require more experimental methods and responses, challenging the notion that these problems must and should be 'solved' (Peters, 2017) in any conventional sense.

Systemic Change

Systemic change is a concept that has received much attention in recent times (Taylor, 2016); as such, it is useful to create some definitions for it. It is commonly defined as sustainable, large-scale change, an intentional process designed to 'alter the status quo' by shifting the function or structure of an identified system. It is considered to be fundamental, sustained change with shifts in experience and outcomes across the whole of a system for people, communities, and institutions. It can involve many elements, such as social movements, business and organisational models, laws and regulations, data and infrastructures (Murray et al., 2010).

Systems change aims to bring about enduring change by modifying the underlying structures and mechanisms which make that system operate in a particular way (Taylor, 2016). Systemic innovation then changes the underlying paradigms and mindsets, as well as the flow of resources of a system. Change only occurs when people have entirely new ways of thinking, seeing and doing (Murray et al., 2010; Taylor, 2016). It also involves changes to power, in terms of who holds and uses it (Taylor, 2016).

Paradigms are how we describe our world view, informed by philosophical assumptions about the nature of reality (ontology), ways of knowing (epistemology) and ethics and value systems (axiology) (Chilisa & Kawulich, 2012). They can represent the shared beliefs, values and methods across a discipline and guides how problems may be solved (Schwandt, 2001, as cited in Chilisa & Kawulich, 2012). They lead us to ask certain questions and use certain approaches to systematic inquiry (methodology). As such, it is in considering and exploring these that this thesis is interested.

Change can be seen in two simple ways, either as incremental change, which entails making adjustments to the current paradigm, or systemic change, which involves transforming a current paradigm into a different one (Joseph & Reigeluth, 2010). Manzini (2010) describes radical types of social innovations as radical as those that lie outside the existing ways of thinking and doing.

Commonly, social innovations come up against the barriers of the old paradigm, which need to be overcome; the extent to which they can grow will often depend on the creation of new conditions to make them viable (Murray et al., 2010). Social innovation is currently generating a constellation of small initiatives, yet if 'helpful' conditions are created for these small, local social ideas and prototypes, they may be scaled-up, consolidated, replicated and integrated with larger programmes to generate large-scale sustainable changes (DESI, n.d.).

"To do that, new design competencies are needed. Indeed, social innovation processes require visions, strategies and co-design tools to move from ideas to mature solutions and viable programs. That is, they ask for new design capabilities that, as a whole, can be defined as design for social innovation" (DESI, n.d.).

As such, systemic change relates to the new idea and the required conditions

for the idea to have an impact. This thesis is focussed on these radical, systemic forms of social change and, considering the conditions these may require, within ourselves as practitioners as well as the systems we are looking to change.

SOCIAL INNOVATION

This chapter presents a position and critical reflection of social innovation in terms of what it means, what it can achieve and ways it goes about this, considering various principles, mindsets and approaches and critically, for generating sustainable and systemic change.

Introduction

Social innovation has been widely recognised as important in addressing complex, societal challenges by a variety of influential institutions, particularly in policy and academic research (De Bruin and Read, 2018). It increases inclusion and well-being through improving social relations and empowerment processes (Markussen, 2017).

Defining what social innovation is, whom it is done by, where and under what conditions it occurs, is a valuable yet 'contested space'. As a broad field, it can have different agendas, ranging from politically conservative intentions, through to community-based and generated initiatives responding to local challenges (Bannon & Ehn, 2012).

Social innovations (the results of social innovation) are plentiful in our society. Some examples include restorative justice and community courts, self-help groups, self-building housing, holistic health and hospices, kindergartens, distance learning, cognitive behavioural therapy for prisoners and Wikipedia (Mulgan et al., 2007).

"It is social in its ends as well as its means, creating new ideas (products, services models) that simultaneously meet social needs and create new relationships, collaborations and coalitions. They are innovations that are both good for society and enhance society's capacity to act" (Murray et al., 2010, p. 3).

Social innovation can not only serve excluded peoples but is also served by them in turn, where the exclusion of peoples from essential socio-economic and ecological services, in fact, increases the vulnerability of the whole (Westley, 2010). This diversity enables our systems to grow and innovate (Stroh, 2015), so including people who have been historically excluded enables the contribution of their viewpoints and diversity, not just as recipients of policy, interventions and services, but as active participants and contributors to our social system resilience (Westley, 2010).

"There is no one way of doing social innovation"

Social innovation does not have fixed boundaries, specific contexts, subject matter, and there are hundreds of methods for social innovation (Murray et al., 2010). While it does not have a specific method/s, there are principles, mindsets and approaches that support the creation of social innovations.

Social innovation is focussed on improving society's capacities to solve its problems (Mulgan, et al., 2007), described as:

"The context of changing the system dynamics that created the problem in the first place, a social innovation is any initiative (product, process, program, project, policy or platform) that challenges...the broader social system in which it is

introduced. Successful social innovations reduce vulnerability and enhance resilience. The capacity of any society to create a steady flow of social innovation, particularly those which re-engage vulnerable populations, is an important contributor to the overall social and ecological resilience.”
(Westley, 2008)

This system view of social innovation speaks to the required capability and capacity for society to respond to issues facing us now, and those that will emerge. We need to consider our approaches and responses in light of the system changes we are seeking to make and in the context and nature of that system.

Social innovation is an interdisciplinary or transdisciplinary practice and has roots in different social science disciplines (Haxeltine et al. 2017) recognising that the nature of the issues requires a broader and deeper understanding than any one discipline, including design can address.

In understanding adversity: “that knowledge doesn’t come from social innovation and design practice, it comes from other places”

Along with the belief that social innovation is a means to address urgent societal challenges, there are valid and profound concerns that, considering the persistent nature and systemic complexity of these challenges, the actual potential of social innovation is unrealised, and it is not a ‘cure-all’ solution (Haxeltine et al., 2017).

The role of social innovation, especially in systemic change, needs to be clear in its intention, trajectory, limits and values; and self-aware of the role we are playing, what we are and are capable of contributing to, Intentionally or otherwise. Otherwise “people in government will do what [it] has always done, for the same results, all the while genuinely thinking what they are doing is something new” (Berentson-Shaw, 2017).

Principles

The principles and mindsets described below are some helpful ways of thinking, being and doing for social innovation, as a practice and in the conditions to support it. They prompt us to think about who we are and how we are while doing the 'work' (Innovate Change, n.d.), as well as some critical considerations in terms of recognising what social innovation is not.

In Aotearoa, Innovate Change generated a set of mindsets to support and guide their practice of social innovation as a way of building social connectedness (Innovate Change, n.d.). These represent ways of thinking and being that we can consider and adopt:

Whaowhia te kete mātauranga, Curiosity: being 'radically open' and not burdened by needing to be an 'expert', which asks us to be willing to be changed by what we see, feel and hear with people, being in and exploring the present with open questions and listening deeply. It includes asking the difficult and challenging questions that we are often too afraid or uncomfortable to ask.

Ako – Mā tini mā mano ka rapa te whai, Learning by doing: social innovators have a preference for learning through action, making and experimenting over governance and planning meetings and talking about people and ideas. They use prototypes as ways to take action, challenge assumptions and learn early, getting feedback on ideas to discard what does not work for people and improve on the things that do.

Kia noho tau i te rangirua, Being in the grey: being at ease with ambiguity and uncertainty, not sure about things and accepting that we live in a complex and unpredictable world, embracing not knowing what comes next, and not necessarily having a defined view of problems, clear plans or pre-defined solutions.

Rangatiratanga – He aha te mea nui o te ao, he tangata, he tangata, he tangata, People are the experts: often we speak about people, not with them, making assumptions about their needs and making decisions that impact their lives without them. Social innovators believe that people know their lives better than anyone else, so privilege them and their views and value participatory approaches. We should let go of our egos, ideas and need for control, involving people with lived experience as active partners throughout the process.

Ahakoa nga heke, he hāneanea te haere, Comfort with the prospect of failure: there is a personal and professional stigma attached to failure that continues to be a significant barrier to innovation. The reality of failing is that it always feels uncomfortable, so social innovators work to be not afraid of failure, detaching ourselves, ego and emotions from our ideas and cherishing the learning opportunities failure brings.

The Social Innovation Community (2016) has developed a framework, with seven principles of socially innovative policymaking, outlining how policy can both support social innovation and can be socially innovative in itself. These include:

Challenge-focused: being focussed on collaboratively dealing with some of society's biggest challenges

Openness: to design and deliver better solutions we need to be open to

new insights, methods and approaches as well as forms of knowledge and expertise

Human-centred design (HCD): focussing on 'user' rather than administrative needs, approaching challenges with empathy using HCD methods and approaches, such as user research and ethnography.

Collaboration/co-design: going beyond consultation to meaningfully involve users and citizens, based on the belief that solutions will be better with input and ideas from citizens and other stakeholders

Experimentation and evidence: outcomes-focussed, seeing if an intervention is achieving its intended goals in a real-world setting. Evidence and experimentation allows better decisions to be made, including evaluating what is and is not working

Iteration: adopting an agile approach, where solutions continue to be refined and re-visited with a series of feedback loops, in contrast to a top-down, 'waterfall' strategy or model

Connecting/scaling: this refers to embedding, sustaining, expanding, replicating, adapting and sustaining effective solutions in over space and time to reach a higher number of people. It requires political support, connected and in alliance with other policies and programmes, with monitoring and evaluation to ensure it is still achieving impact as it grows.

Other key factors include facilitators taking a 'coaching approach' to enable stakeholders to best contribute their expertise within context and subject matter. Peer-to-peer learning is a critical component, creating the space and dynamics for collaboration and knowledge exchange for encouraging all participants to share their own experiences, knowledge and expertise.

Approaches

This section outlines approaches within social innovation, considering different ways of acting and doing that are proving helpful in addressing systemic social change.

Innovate Change developed a highly collaborative and participatory, seven-stage 'innovative action model' for working on services, programmes and policy change (Innovate Change, n.d.).

[Figure 5]
Innovate Change Social Innovation Approach

NESTA and the Young Foundation have identified that there are six stages for social innovations, from inception to impact. These stages are not sequential with feedback loops between them, which can be seen as overlapping spaces, requiring distinct cultures and skills. They provide a useful framework for thinking about the different kinds of support that innovators and innovations need in order to grow. These are (Murray et al., 2010):

Prompts, inspirations and diagnoses: these are the factors that highlight the need for innovation, crises, fiscal constraints, poor performance, new strategy and inspirations that spark it. They involve diagnosing the problem and framing it, focussing on root causes, not symptoms.

Proposals and ideas: a stage of idea generation, which can involve formal methods (such as design and other creative methods), engaging with a wide range of insights and experiences.

Prototypes and pilots: testing ideas in the real world; this can simply be trying things out or through formal pilots, prototypes and randomised trials. The need for iteration and refinement is critical, developing measures of success and importantly building the strength of the relationships/ coalitions involved and resolving conflicts.

Sustaining: when an idea becomes everyday practice, streamlining and identifying mechanisms for long term viability (including finances), identifying budgets and resources (e.g. people and legislation).

Scaling and diffusion: a range of strategies may prove useful here for growing and spreading innovations. These can be organisational growth, such as licensing, through to looser diffusions of ideas being emulated and creating inspiration are critical requiring support, know-how and adaptive growth. Considering different conceptions of scaling is essential here, as traditional models may be limiting for social concepts.

Systemic change: entirely new ways of thinking and doing with the creation of entirely new conditions to make the innovation viable; more realistically the need for many innovations and commonly involves changes over long periods.

Social innovation then asks us to be social in how we are as much as what we create or the solutions that we design. It takes a position of curiosity and enquiry, engaging in creative, experiential and collective ways of learning and testing our assumptions. Critically, it calls us to engage and re-engage with those who have been excluded historically, and do so by centring their lived experience and needs within problem framing and solution design.

[Figure 6]

*Social Innovation Stages Source:
Open Book of Social Innovation.
(Murray, et. al 2010)*

DESIGN FOR SOCIAL INNOVATION

This chapter considers the role of design and design-led approaches within social innovation and more broadly that are seeking to enact transformation, and systemic, social change.

It provides some context, boundaries and characteristics to what is meant by design in this context and specifically exploring participatory and co-design.

Introduction

Design is increasingly being seen as an approach for radical change, in developing services, systems and environments for more sustainable lifestyles and habits (Bannon & Ehn, 2012). It has and continues to be recognised as a useful approach within systems and particularly addressing 'wicked' problems (Irwin, 2015). In fact, Rittel, who created the concept in the 1960s, stated that most of the problems addressed by designers are indeterminate and 'wicked', as the subject matter of design is potentially universal and may be applied to any area of human experience (Buchanan, 1992).

There is no single definition of design. It is described as a supple discipline, amenable to radically different interpretations in philosophy as well as practice (Buchanan, 1992). The ways we define what and how we design changes with the subject and context we are designing in (Hagen, 2011), with the tools and methods of design being adopted across various fields and disciplines to frame these types of problems (Irwin, 2015). As such, design disciplines are adapting and new approaches emerging (Design Council, 2006), being seen as a way to convene multiple and diverse stakeholders and perspectives, foster collaboration and innovation, visualise, test and realise solutions (Body, 2019).

To understand the expanding scale of design and the new contexts in which it is being applied, Buchanan proposed four orders of design, considering each as a place for rethinking the nature of design (2001). This thesis is exploring the 'fourth order of design', namely that of environments and systems, the design of thoughts within human systems.

[Figure 7]
Orders of Design (Buchanan, 2001)

The UK Design Council (2006) outline six key characteristics that define or distinguish transformational projects:

Defining and redefining the focus (the design brief): collectively (including with 'users') understand and define the scope of the issue and define the right problem to tackle.

Collaboration between disciplines: expertise for solving complex problems does not sit exclusively with 'design' and cannot be addressed from a single point of view. Open approaches and the term 'designers' to include context and subject matter expertise within the area one is operating.

Employ participatory design techniques: recognise that top-down innovation strategy does not work for complex problems, and solutions must be chosen by those who receive and deliver them, meaning designers must make the design process accessible to 'non-designers'.

Building capacity, not dependency: because we are now operating in a state of constant change, 'design is never done'. Rather than design a response to the current issue, transformational design creates a means of continually responding, adapting and innovating.

Designing beyond traditional solutions: because we are applying design skills in non-traditional contexts and problems, we create non-traditional design outputs. Transformation design shapes behaviour as well as form and demands a high level of 'systems thinking'.

Create fundamental change: transformation design 'aims high' to change a system or culture, transforming by giving organisations the capability to design experience from a human perspective. It is proactive, by identifying needs and creating solutions to respond to those needs.

The role of design in and for social innovation is a significant one, with references to divergent and convergent (double-diamond) models, HCD, participatory and co-design practices engaging a variety of actors directly involved in the problem to be addressed (Design Council, 2006; The Young Foundation, 2018; Murray et al., 2010; Bannon & Ehn, 2012). While there are differences and some contention regarding the specific role and place of design in and for social innovation, it is clear that design has important contributions to achieving social innovations and systemic change.

Participatory (Co-) Design

Participative approaches are proving some of the most effective methods for cultivating social innovation, grounded in the perspective that people are competent interpreters of their own lives and solvers of their problems (Mulgan, 2006). 'User-led' services and advocacy are increasingly recognised, where people directly experiencing exclusion are taking action and organising responses to their own situations (Burkett, 2013).

It is crucial to consider the different histories, trajectories and applications of the various terms used for 'participatory' approaches (Burkett, 2013), with

application across a variety of industries, disciplines and research under a diversity of terms (Smith, 2017), such as design thinking, participatory design (PD), co-creation, and co-design, terms often used interchangeably. Considering how PD continues to engage stakeholders in experimental practices of innovation, its values and ideals take on new meanings and forms, requiring us to take critical and contextual approaches (Smith et al., 2017).

It is crucial to consider the different histories, trajectories and applications of the various terms used for 'participatory' approaches (Burkett, 2013), with application across a variety of industries, disciplines and research under a diversity of terms (Smith, 2017), such as design thinking, participatory design (PD), co-creation, and co-design, terms often used interchangeably. Considering how PD continues to engage stakeholders in experimental practices of innovation, its values and ideals take on new meanings and forms, requiring us to take critical and contextual approaches (Smith et al., 2017).

This thesis explores, PD, co-design and co-creation as a designerly practice grounded in a participatory mindset. Although creating definitions and boundaries between these may be helpful, it is outside the scope of this research; it uses the terms of the authors for the sake of clarity.

PD offers us an opportunity to engage and re-engage with people and communities historically excluded from our systems. It provides a critical, political frame through which people, community, social, civic, political and professional lives as forms of 'participation' can be understood (Hagen, 2012). It aligns with community-driven development and deliberative democracy, which seek to enhance citizen participation and empowerment (Bloomkamp, 2018).

As with social innovation, PD is not a single method or methodology; rather, it is a mindset and a perspective about people (Sanders, 2002). As a practice, it privileges the domain knowledge of stakeholders, assuming their right to representation in the design process and determination over what is designed (Hagen, 2011). It is defined as "a methodology that argues in favour of the possibility, the significance, and the usefulness of involving research partners in the knowledge production process" (Bergold & Thomas, 2012).

As such, the practice and process emerge in relationship with our stakeholders as 'research partners' (Bergold & Thomas, 2012). It is based on the belief that all people have something to contribute to the design process and are able to be creative and articulate when enabled with the appropriate tools (Sanders, 2002).

Participative strategies have an epistemology of creativity and investigation, where experience grows out of real-life contexts and is a fundamental part of 'knowing' and knowledge (Bannon & Ehn, 2012). They align with a phenomenological perspective of knowledge generation, putting ordinary

human experience at the centre of knowledge and understanding, emphasising 'lived experience' as a source of knowledge and theory (Hagen, 2011).

The methods used in PD are a form of intervention that enables stakeholders to experience, reflect on and share otherwise tacit and latent forms of knowledge (Sanders, 2012), and then use that knowledge to act (Bødker & Iversen, 2002). PD works from the position that it is our obligation as designers to create conditions for participation in design, and to privilege openness, sociability and flexibility in our designs (Hagen, 2011). This can enable us to build mutual understanding across a system, aiming to change complex and entrenched social issues, engaging with the skills, knowledge and experiences of all people involved (Burkett, 2013).

Co-design is a term that is becoming more frequently used, often positioned as a new or different approach to address long-standing social challenges (Blomkamp, 2018). It is a design-led process, involving creative and participatory principles and tools to involve different kinds of people and knowledge in problem-solving, drawing on established traditions of participation, collaboration and empowerment. These principles and tools provide ways of understanding problems and generating solutions with the active involvement of diverse participants in exploring, developing and testing responses to these challenges.

Ultimately, we can define co-design by breaking down the term into 'co', meaning cooperative, collaborative or community (Blomkamp, 2018) and 'design', the act of intentionally creating solutions, innovations and improvements that address problems and open up possibilities for a better life (Burkett, 2013).

There has been a lack of empirical research into the efficacy and impacts of involving 'citizens' and other stakeholders within the design and delivery of social services and policy (Blomkamp, 2018). Nor is there clarity on whether broader participation with more people or deeper participation with a few key people is more effective (Burkett, 2012, as cited in Blomkamp, 2018). As such, participatory and co-design practices within social change do require closer and more critical scrutiny.

However, what is proving to be plausible for these practices is that the involvement of a variety of stakeholders, including 'citizens' and end-users throughout the design process, may result in better problem definitions and more effective and efficient solutions that meet people's needs (Blomkamp, 2018). Also, introducing principles and methods for improving experimentation and idea generation may stimulate innovation within the public sector and co-design can build relationships, trust and positive engagement and be a means to build social capital.

PD and co-design are proving to be terms that are often used, yet underdeveloped in its application (Burkett, 2013), at times loosely defined and enacted as any form of collaborative or participatory activity (Blomkamp, 2018). However, these can lack in-depth collaboration and mutual learning; at times, merely representing consultation but with a different name. It is critical then for us to have a deeper understanding of what participation really means.

Participation and Power

Exploring the breadth, depth and history of democratic, citizen and user participation is beyond the scope of this research; however, it presents some pertinent concepts and critical questions for practitioners to engage with, relating to ethics, politics, democracy and empowerment.

The participation of citizens, as ‘the governed’ in their government is a foundational aspect of democracy, something lauded in theory, yet when redistribution of power is required, there tends to be less agreement about what participation is, who it is for and how it is done (Arnstein, 1969). Participation can be considered as a categorical term for power, requiring a redistribution of power to the people historically excluded from political and economic processes. *“There is a critical difference between going through the empty ritual of participation and having the real power needed to affect the outcome of the process” (Arnstein, 1969).*

It is in this sharing of power that we achieve authentic participation, as, without it, those involved experience an empty and frustrating process. Within the social sector over recent decades, citizen participation has at times become tokenistic, with terms such as ‘partnership’ used without the real engagement of people experiencing exclusion (Burkett, 2013).

Arnstein’s Ladder of Participation is a well-known model within social science and services (Burkett, 2013) that can provide some definitions within our practices. It is within the degrees of citizen power that social innovation and participatory practices are interested, giving people full, majority or shared decision-making responsibilities (Arnstein, 1969).

[Figure 8]
Ladder of Participation (Arnstein, 1969)

'Partnership' is where power is redistributed in negotiation with people and the conventional 'power holders', agreeing to share planning and decision-making with processes and mechanisms for this, and negotiating and resolving issues. Ground rules are set with reciprocity, and 'give and take', and are not subject to unilateral change (Arnstein, 1969). Critically this increase in decision-making is over process and outcomes, being able to influence the design approach as much as the solutions and interventions.

Within design practice specifically, Liz Sanders (2008) speaks of two opposing mindsets evident in the practice of 'design research'. One is a culture characterised by an expert mindset, the other a participatory mindset. Designers with a participatory mindset work with people as valued co-creators in the design process, treating lived experience as a form of expertise, amongst conventional specialist, professional experts (Blomkamp, 2018). This mindset contrasts with the 'expert' or 'user-centred' mindset that positions researchers and designers as experts and relegate the people being served by design as the research subjects and/or the recipients of a designed object (Sanders, 2013). The 'big ego' design approach where the designer determines the vision, ideas and possible solutions (Blomkamp, 2018).

[Figure 9]
Map of Design Practice and Research (Sanders, 2008)

The focus of much practice has been on involving 'users' to tap into their experience and knowledge, creating a one-way process in which requirements are gathered from, usability tested on, and systems delivered to people (Bødker,

2018). It has been rare for co-design to move beyond engaging people in the 'generative research' phase of design (Burkett, 2013). This can lack mutuality, reciprocity, or sharing of decision-making or power and it does not really serve the intentions or the politics of participation and PD.

“[I talk about] Co-design and design practices ‘practiced well’. That’s now the qualification I put behind every use of that term.”

PD 'practised well' creates a relationship where experts and participants share power to plan and deliver support together, recognising the vital contributions all partners make in order to improve the quality of life for people and communities (Slay and Stephens, 2013). Shifting these dynamics of participation and power creates space for people to be involved in a meaningful and reciprocal way, building new capabilities (Auckland Co-design Lab, 2018) and generating new possibilities and opportunities.

We need to consider what 'power' is and how we can understand its dynamics. Power can be defined as the degree of control people have over material, human, intellectual and financial resources. This control becomes a source of individual and social power (Just Associates, 2002). It is relational, being exercised in socio-economic and political relations and is often unequally distributed. Power is expressed in different ways, such as in dominating (over people), in finding common ground, enabling mutual support and collaboration (with people), in the potential of every person to shape their life and world, self-worth and knowledge (within people), and in recognising individual differences while respecting others. There are multiple dimensions of power, with less visible dimensions being the most challenging to address (Just Associates, 2002):

Visible Power: Observable decision making. These are the formal decision-making rules and processes. Strategies for addressing this level of power try to change the who, how and what of decision making to be more accountable.

Hidden Power: Setting the political agenda. This is the maintenance of influence by controlling who gets to the decision-making table and what gets considered or addressed. Strategies here focus on strengthening and building the collective power and new leadership of those who have historically been excluded, to influence the way the political agenda is shaped, increasing their legitimacy and voice.

Invisible Power: Shaping meaning. This is the shaping of boundaries of participation, influencing how people think about their place in the world and beliefs about their sense of self and acceptance of superiority or inferiority. This defines what is 'normal' and 'safe' for people and can be how exclusion and inequality are perpetrated. Strategies here target social and political culture, as well as within individuals consciousness to transform people's perceptions of self and 'other'.

To enable participation in our approaches, we need to have a meaningful and practical understanding of power and its dynamics. We need to consider that as practitioners and decision-makers we have the balance of power in the approaches we take, and are the ones with control over resources, influencing outcomes and making decisions every step of the way. To truly enable systemic and ongoing change capability and capacity, a shift in power dynamics is required, particularly into the hands and lives of those with lived experience of our systems.

Privileging Lived Experience

As practitioners, we have a moral and social responsibility to consider what kinds of practices we might be supporting, as some approaches and solutions enhance possibilities for human agency, while others can diminish it (Roberts, 2006, as cited in Hagen, 2011).

Enabling this agency requires privileging people's lived experience as a valid and powerful site of knowledge and potential for change. It requires moving beyond generative research and enabling collaboration for the sake of engaging people's knowledge as 'inputs' in our processes, and seeing people as equitable contributors, decision-makers and navigators of design. It is not enough to think that any level of involvement, in any form of HCD approach is enough, with people only minimally or passively involved and not necessarily contributing to the development of solutions (Blomkamp, 2018), especially as we seek to engage and re-engage those who have been excluded historically (Westley, 2008).

We need to prioritise the voice of experience not merely as another input, dimension or perspective, but as a site of power that if enabled can be a catalyst for significant changes for people, whānau, communities, organisations and society as a whole. An active partnership is about opening up our design processes and approaches themselves, as much as it is about involving people within 'our' processes. It means relinquishing the control and power in defining how we design together, as well as what we design together; this is essential when operating within cultural contexts and in spaces of traumatic and adverse lived experiences.

Principles

In the mental health sector, in Aotearoa and globally, there has been an increase in the value seen and sought in 'peer support' and peer networks, often defined as consumers or service-user representatives and the peer workforce; all these require personal lived experience of mental health and/or addiction distress (Te Pou, 2014). Within this there are key learnings around what is meant by 'lived experience' and what it means to value and privilege it within our practices. Te Pou o te Whakaaro Nui have developed values to

guide practice the peer workforce (Te Pou, 2014). These can provide us with a necessary foundation to consider how we are engaging with those with lived experience, and how we can do so authentically and appropriately. These are (Te Pou, 2014):

Mutuality: the authentic two-way relationships between people through ‘the kinship of common experience’.

Experiential knowledge: the learning, knowledge and wisdom that comes from personal lived experience of mental health and addiction needs, recovery and wellbeing.

Self-determination: the right for people to make free choices about their lives, including what others may see as ‘poor choices’ and to be free from coercion based on their mental health or addiction needs.

Participation: the right for people to participate and lead in mental health and addiction services, in their treatment and recovery and including in the development or running of services.

Equity: the right that people who experience mental health and addiction need to have fair and equal opportunities and to be free of discrimination.

Recovery and hope: the belief that there is always hope and that resiliency, meaningful recovery and wellbeing are possible for everyone.

These values provide us with necessary directives, grounded in and from lived experience to shape our work when operating within social innovation and systemic change.

These principles also have specific and unique meanings within Aotearoa; as self-determination is a fundamental principle for Māori, within tino rangatiratanga (sovereignty) and mana whakahaere (governance, authority) (Durie, 1999). Kaupapa Māori research and practices provide us with concepts and principles for considering the role we, as practitioners, can take in enacting self-determination in meaningful ways; explored in more detail in ‘Engaging with Indigenous Peoples and Knowledge Systems’.

When we are operating within social contexts and challenges, the act of engaging with people is in and of itself an intervention and an action of change; so it is our responsibility as practitioners to consider the paradigms and mental models of our participatory practices.

“Every engagement is an intervention. So seeing it much more as the design process being an intervention in the change process and not a thing that you do before you start the change”

There are some core principles underpinning PD and co-design are that people are creative, are experts in their own lives, and that solutions should be designed by people with relevant lived experience (Bloomkamp, 2018). There are also some identified prerequisites to support and open the space for the practice of co-creation for societal transformation (Sanders, 2013), including that:

People can and will participate in a creative process if they are motivated and provided the tools to do so.

Engaging diversity is critical. If all participants are of the same background, perspective and opinion, the outcome may be limited and predictable.

Shared problem definition in the front end of the design process, not just joint problem solving.

Continuous dialogue and conversation, in conjunction with workshops that involve a broad range of stakeholders.

The exploration and use of design tools, materials and methods that put all the players on a common ground.

A focus on experiences, not just on products and services, and the whole of experiences, not just an episode or single touchpoint.

Some principles specifically for co-design in public or social innovation are (Blomkamp, 2018): being outcomes focussed to achieve change and improving results (not outputs); inclusive of different types of participants with different types of knowledge like lived experience and professional/specialist expertise; and participative, as it involves people as active participants with meaningful input throughout. It is respectful, with all participants seen as experts, and their input is valued and has equal standing and adaptive, as co-design is an experimental process aiming for innovation, and should be full of feedback loops, learning, iteration, and trial and error.

Ingrid Burkett (2013) outlines some fundamental principles for co-design:

Everything is designed, not all intentionally: co-design intentionally and collaboratively designing responses, increasing the effectiveness of services.

Begin with questions, not solutions: be curious, not certain; gain insights to inform, enrich and humanise hard data.

Learning with people with lived experience in their context: includes learning outside the office and your comfort zone, providing insights into the complexity of people's lives.

All parts of the system need to be engaged, not just the end-user.

Co-design happens over time and structures different kinds of relationships with people (it is not an event).

Consider whether it is the right approach, how and where co-design happens within organisations.

Co-design is alive, requiring a commitment to change and feedback loops, making and testing change over the lifetime of a programme. It will involve conflict, tough decisions, risk and failure.

The 'Four Voices of Design' is a model that identifies four essential perspectives to involve in within a complex system: the voices of intent, experience, expertise and design; aiming to hear all voices in the "right balance" (Body, 2019, p.33).

[Figure 9]
Four Voices of Co-design (Body, 2019)

The relationship between these different perspectives is, in fact, dynamic, as human identity is complex and fluid, meaning that no-one is fixed to any one role (Kurtz & Snowden, 2013, Goh, n.d) or 'voice'. Also, in social innovation there is a need to address disparity and re-inclusion, with redistribution and sharing of power; what the 'right balance' is amongst these voices requires critical enquiry and application.

Approaches

Participatory (co-) design is a creative, making and learning approach, in which people with lived experience and those designing partner to collaboratively understand and frame problems, including the context it operates in. It means designing solutions to shift outcomes and results with experimentation, prototyping and testing, iterating and adapting in a shared commitment to meaningful partnership and change.

There is no one approach, method or process for participatory and co-design. However, there are typical phases of activity that tend to 'diverge and converge', moving from problem framing and definition of needs, to discovering more about people with people, the issues and contexts, activities for generation and ideation and some form of prototyping and testing.

Who is involved, the issue and its context determine what appropriate methods, activities and tools might be. As such a skilled facilitator is required to enable people to express themselves and meaningfully participate and be inspired to envision ideas and new futures (Blomkamp, 2018).

The Auckland Co-design Lab have a whānau-centric, co-design approach they use with partners, applying co-design principles and a systems lens to

complex social issues. This framework adopts a strengths-based mindset, building new capabilities and reciprocal relationships with those involved (Auckland Co-Design Lab, n.d). As it moves through four key stages there are key questionns to be explored within each, these are:

Clarify the intent – who needs to be involved and how and exploring what is already known.

Developing new insights and understanding with whanau and stakeholders – prioritising and reframing the opportunity.

Exploring possible responses with whanau and stakeholders – generating and exploring possible responses.

Testing new ideas and prototypes – learning and changing, including considering the require capacities and capabilities need to embed these.

[Figure 10]
Auckland Co-design Lab Approach (2018)

It also helps identify the required skills and knowledge and conditions that support people and whānau-centred design and innovation practice (Auckland Co-Design Lab, 2018). These capabilities and conditions fall in to four streams, these are (Auckland Co-Design Lab, 2018):

Working with people, whānau and stakeholders: working together in culturally grounded ways to create new capacities and practices, sharing power and influence to position whānau as experts and assets. It involves removing barriers for participation, creating safe and brave spaces for mutual learning and new kinds of connections.

Designing and innovating: applying and evaluating different HCD and implementation ppproaches to understand and reframe issues and work with lived experience amongst other forms of data and evidence.

Organisational integration and responsiveness: building partnerships for shared outcomes, building a culture for learning, prototyping and being responsive to changing needs.

Structural conditions: structures, policies, funding, resourcing, and measures that enable participatory and whānau-led approaches.

A SYSTEMS ORIENTATION

As outlined earlier, ‘wicked’ problems are systems problems, permeated by social dynamics (Transition Design, 2018). As such our approaches need to take a systems orientation or perspective to understanding problems, their context and potential solutions. Design thinking in and of itself is not enough to address these problems; what is required is for innovations to be supported to enter and actively shape the complex system the challenge operates in (Conway et al., 2017). Social innovation needs to engage with systems theory and complexity to contribute to social change (Struthers, 2018).

Introduction

With social innovation and entrepreneurship reorienting towards systems change, there is the recognition that practitioners need to understand the broader systems in which problems exist, collaborate with others working to solve those problems, and grasp systems dynamics to contribute to a broader, systems-level theory of change (Papi-Thornton & Cubista, 2019). A systems orientation considers our role and impacts as part of the systems we are seeking to understand and change and that we need to cultivate a particular way of being and also learn new ways of doing things (Stroh, 2015).

“The root of our difficulties is neither recalcitrant problems nor evil adversaries – but ourselves” (Senge, 1990, p.63); the real challenge we face is in the mismatch between our predominant, conventional ways of thinking and the nature of reality within complex systems. Senge (1990) outlines three high-level orientations that can support shifting these ways of thinking:

1. **Creative orientation:** our genuine desire to excel, source of intrinsic motivation and drive to achieve, prioritising the common good over personal gain.
2. **Generative conversation:** deep and meaningful dialogue to create shared thought and action.
3. **Systems perspective:** the ability to see things holistically by understanding the interconnectedness of its parts.

Change is not as simple as telling people to change or imagining that awareness of the ‘good’ thing to do will result in it happening, even for ourselves (Meadows, 2008). As such, a systems orientation encompasses more than just ‘thinking’; it also includes emotional, physical and spiritual dimensions for us to engage with (Stroh, 2015). “Social systems are the external manifestations of cultural thinking patterns and profound human needs, emotions, strengths and weaknesses” (Meadows, 2008).

A system is simply a collection of parts interacting with one another to function as a whole, not the sum of its parts but rather the interactions of them, such as solar systems, biological systems, the digestive system, mechanical systems and ecological systems (Maani & Cavana, 2007).

When the purpose of a system, its goals and outcomes are not delivering what we believe it should, we may hear systems referred to as ‘broken’. However, systems are ideally structured to produce the results they are achieving; it just so happens that the results we desire are different from those the system is currently achieving (Stroh, 2015). It is in surfacing and addressing this discrepancy or ‘gap’ that we find a force for constructive change.

Systems Thinking

As discussed earlier, the nature of 'wicked' problems precludes the ability to identify simple, linear causes to specific problems. Instead, we need to recognise that in any complex situation, there may be many different and valid perspectives on what is occurring, what the problem is (Chapman, 2005) and what is causing it. This influences how we frame our intentions, how we contribute to unintended consequences, how we can shift our thinking to look at long-term and lasting solutions, and how we can maximise the use of our limited resources (Vega, 2015).

"System dynamics is the study of complex systems, including such human systems as families, organisations, cities, and nations. If you look deeply into any system and analyse the relationships between members, you will find infinite complexity" Peter Senge (2005).

Systems thinking is a holistic approach to complex social challenges, which deals with complexity by increasing the level of abstraction (synthesis), not dividing the problems into manageable elements (analysis). By contrast, traditional mechanistic thinking simplifies complex situations by breaking them down into manageable parts in a process called reductionism (Chapman, 2005). Systems thinking focuses on the interdependencies and relationships between actors and aspects of a system, simplifying by discarding detail while retaining the connections between the parts in such a way as to achieve the desired purpose (Stroh, 2015).

Systems theory, thinking, and dynamics is a field of knowledge for understanding change and systems through the study of dynamic cause and effect over time (Maani & Cavana, 2007). It challenges the underlying assumptions we hold (Jones, 2003) that:

- every observed effect has an observable cause
- even very complicated occurrences can be understood through analysis: that the whole can be understood by taking it apart and studying the pieces
- sufficient analysis of past events can create the capacity to predict future events.

Systems thinking has three dimensions: paradigm, language and methodology (Maani & Cavana, 2007). As a paradigm, it is a way of thinking about the world and relationships. It involves 'forest thinking' in seeing the big picture and how the components interact; 'dynamic thinking', knowing that the world is not static and the change is constant; 'operational thinking' in understanding how things really work and affect each other; and 'closed-loop thinking', which recognises that cause and effect are not linear and that effects can influence causes.

Systems thinking posits that structure influences behaviour, that these

structures are subtle and made of perceptions, goals, rules and norms, and that leverage often comes from new ways of thinking (Senge, 1990). It is this leverage that systems thinking is seeking, a place within the dynamics of a system to take action or design interventions to create a fundamental and lasting impact on a system (Maani & Cavana, 2007).

The language of systems thinking is a tool for understanding complexity and dynamics; it is visual, diagrammatic and focused on communication and shared understanding. It has a set of precise rules, translates perceptions into explicit images and is circular in that it emphasises interdependencies. As a method, it is a collection of modelling and learning tools, for understanding the structure and dynamics of a system and facilitating collective learning.

Learning Organisations

The learning aspect of a system perspective is critical and emphasised in the concept of the 'learning organisation', in which people continually expand their capacity to create desired results and nurture new and expansive patterns of thinking, collective aspiration is embraced and people continually learn to see the whole together (Senge, 1990). There are five disciplines for practitioners within learning organisations:

Personal Mastery is the discipline of personal growth and learning, developing our proficiency and deepening our personal vision. Creative tension emerges when there is a gap between the current reality and vision that can drive us, rather than emotional tension which erodes our vision.

Mental Models these are the conceptual structures we all hold in our minds that shape the way we perceive the world and therefore determine how we act in it. The discipline is one of reflection and inquiry, recognising the mental models we carry, surfacing and testing these assumptions and transforming them to enable change.

Shared Vision is having a collective and genuine commitment, generated out of each person's vision, involving shared values, a shared sense of purpose, and mutuality amongst those involved. Constructive and generative dialogue co-create this shared view, instead of the traditional 'top-down' approach of creating a new vision to 'tell' to people.

Team Learning involves practices of discussion and dialogue, suspending one's views to explore the different perspectives, mental models and personal visions of others. It involves embedding the skills of enquiry and reflection into team processes.

Systems Thinking is the fifth discipline that integrates all of the disciplines into a whole, as the 'cornerstone' of the learning organisation.

Learning organisations and the five disciplines are analogous to Schön's Reflective Practitioner concept, in that the focus of practice is on skills of reflection and enquiry (Hagen, 2011). The five disciplines are concerned with a 'shift of mind' from seeing parts to seeing wholes, from seeing people as helpless reactors to active participants in shaping their reality and from reacting

to the present to shape the future (Senge, 1990). The essence of this is seeing interrelationships, not linear cause and effect chains, and processes of change not snapshots.

Openness is also critical within learning organisations, which can be participative or reflective, the former being the freedom to ‘speak one’s mind’ which may not contribute significantly to learning (Flood, 1998). Reflective openness, on the other hand, involves generative learning and challenges our thinking, surfacing our assumptions and making them open to critical enquiry. A dynamic balance between these is likely vital for change and learning.

Principles

Systems thinking is a broad field, applied in many different industries, sectors and contexts, with numerous approaches and principles. Those captured here provide different perspectives on principles, from broad and universal (Maani & Cavana, 2007), to specific applications in social change (Stroh, 2015) and for learning organisations (Senge, 1990). There are overlaps and consistent themes between these, however, the distinctions in emphasis are helpful to consider.

Maani and Cavana (2007) outline seven principles that provide a framework for the theory and practice of systems thinking and dynamics. These include:

‘The big picture’: this is ‘forest’ thinking referred to earlier, being able to see the whole and the parts and connection of the parts with the whole of a system

‘Short and long term’: that our habits of creating short term solutions can impede long term outcomes, and while sometimes these are necessary, they should not be the ‘all’ of an approach

‘Soft indicators’: refers to the reality that there is much more to a system than is or can be conventionally measured, yet that these indicators are critical for change

‘The System as a cause’: as many problems are actually the unintended consequences of previous decisions, and actions from the underlying mental models that made them

‘Time and space’: an essential aspect of systems thinking is considering delays and chain effects, which often mask the connections between causes and effects

‘Cause vs symptoms’: a problem cannot be solved without understanding the real cause/s for it, yet often what we see and deal with is merely a reaction to symptoms of a problem

‘Either or thinking’: is a type of binary thinking rooted in objective philosophy and our conventional approaches; instead, we need to be able to see and hold multiple causes and effects that are relative and evolving.

Specifically, within the context of enacting social change, Stroh (2015) also outlines seven core principles about how systems function:

Feedback: the performance of our organisations and systems are driven by a web of interconnected (not linear) relationships.

Growth and stability: understanding how systems grow and remain stable, with feedback loops.

Diversity and resilience: that systems grow and innovate through diversity, and they remain stable because of their resilience in the face of change.

Delay: the actions we take have both immediate and delayed consequences that we do not always consider.

Unintended consequences: often today's problems were most likely yesterday's solutions.

Power of Awareness: that when we see and understand a system as it really operates, we build on its inherent strengths and avoid being controlled by its weaknesses.

Leverage: critically that systems improve as a result of a few key coordinated changes sustained over time.

Senge (1990) outlines a series of 'laws' that guide and shape acting within systems, distilled from many systems thinkers and practitioners who guide and shape systems and their behaviours. Some of these are:

Within systems, we experience 'compensating feedback' meaning that **'The harder you push, the harder the system pushes back'**, often finding that well-intended interventions create a response from the system that can offset or cancel the benefits of the intervention.

'Behaviour grows better before it grows worse'. An irony within systems change is that lower leverage interventions tend to generate short-term improvements and benefits, however the aforementioned 'compensating feedback' tends to have a delay in it, meaning we believe the 'fix' to have worked but over time it 'comes back to bite us'.

'The easy way out usually leads back in'. We find comfort in applying familiar solutions to problems, doing what we do well and know best. Even though the fundamental problem persists in the face of our attempts. At times referred to as the 'what we need is a bigger hammer' syndrome.

'The cure can be worse than the disease'. Ill-conceived interventions are not just ineffective; they are addictive as they foster increased dependency and lessen the abilities of people locally to solve their problems.

'Dividing an elephant in half does not produce two elephants'. Systems are defined and have integrity in their whole. The principle of the system boundary is that the interactions that must be examined are those that are important to the issue at hand, regardless of organisational boundaries.

There is no blame. Systems thinking shows us that there is no 'outside' of a system or problem, that we and the cause of problems are all part of the same system. A conventional, linear view always suggests a locus of responsibility, generating blame and guilt. When we take a systems perspective, everyone shares responsibility for the problems generated and the potential for solutions.

Consistent themes emerge in terms of taking a 'whole of system' view and how to do so and that systems operate in cycles of feedback, not with linear cause and effect relationships. Time is a key component in system dynamics, and that our greatest opportunities for change are in leverage, often found in non obvious and at times counterintuitive places. Critically it speaks to the importance of 'seeing' things differently and that there is no blame within systems work, as we are all responsible for the system we are a part of.

A Diverse, Collective Approach – Shared Reality and Vision

A systems approach is a critical and reflective one; for ourselves as individuals and as a collective. The intent is on learning for and from acting, to build a shared view of the current reality, a shared intent and vision and consider the gap between these (Senge, 1990, Maani & Cavana, 2007).

"Systems thinking is a team sport", it works well as it brings people together with diverse perspectives to develop a complete picture of what is happening (Stroh, 2015, p.207). The purpose of mapping a system and its dynamics is not merely for the analysis of it, but as a catalyst for the constructive and generative conversations that lead to shared insights, responsibility and coordinated action (Senge, 1990). Openness, honesty and the separation of ourselves from our thoughts and ideas, can enable us to become creative, less reactive and challenge incoherencies in each other thinking (Senge, 1990), enabling dialogue and 'generative conversation' that are essential for learning (Maani & Cavana, 2007)

Engaging with diverse perspectives and views helps us to reflect better the realities we are facing and as they currently exist in our systems. Importantly engaging with people that we might otherwise exclude, learning from them and building the relationships required to shift the system (Stroh, 2015).

This requires both 'convening systemically', in which all parts of a system are brought together with diverse aspirations, perspectives and experiences as well as 'thinking systematically' (Stroh, 2015). Also we need ways of being that invite a plurality of perspectives; the ability to hold space for multiple and at times conflicting 'truths' and forms of evidence, without trying to negotiate or compromise them (Eppel, 2019).

The concept of convening: "There are insights within organisations about more socially progressive ways of being, thinking and doing, acting. But ... there's no conduit by which we ever can come together."

Ultimately, it is about creating collective processes for convening and learning about challenges, their context and potential resolutions and is a critical reflective enquiry for the self and others (Flood, 1998).

Leverage

The crux of systems thinking is finding leverage rather than definitive ‘solutions’; seeing where actions or interventions can create fundamental and lasting impact in a system. These are points in a system where a small shift in one thing can produce significant changes in everything (Meadows, 1999), compared to non-systemic ways of thinking which consistently lead us to focus on where stress is felt most in the symptoms of an issue, and what end up being low leverage interventions and changes (Senge, 1990).

Within systems, there are multiple levels of perspectives that have corresponding tendencies and actions. Often called the ‘iceberg’ model. These perspectives are different ways we can view reality from events; patterns and the underlying systemic structures through to the mental models that shape and create them all (Kim, 1999). The most influential perspective in a system is these mental models and systemic structures.

[Figure11]

The Iceberg: A tool for Systems Thinking (Kim, 1999 & Northwest Earth Institute, n.d.)

Meadows (1999) discusses leverage points as being counterintuitive, in that we may have an intuitive sense of where they are, yet we often perceive the direction of change in the wrong direction. There are many places to intervene in a system; however, the highest leverage is found in the goals (the purpose) of a system; the mindset or paradigm out of which the system – its goals, structure, rules, delays, parameters – arises; and the power to transcend paradigms.

Systemic change then requires long-term solutions to enable a system and its actors to continually transcend their mental models, mindsets and paradigms for ongoing recognition of change and the ability to respond to it (Meadows, as cited in Senge, 1990).

Experiencing Systems

“People don’t see they are part of a system, they don’t recognise connections or the necessary connections they need to make across the system to increase the value and effectiveness of what we are all doing.”

Systems thinking recognises that people do not see or experience the ‘whole’ of a system: however, our lives are influenced significantly by them and their environments. Buchanan (2001, p.12) states:

“By definition, a system is the totality of all that is, has been, and may yet be contained within it. We can never see or experience this totality. We can only experience our personal pathway through a system”.

Each of the various actors within a system, including ‘end-users’ experience different pathways through a system, at times multiple systems, for example intersecting paths between health and justice systems (Body, 2019). It is in exploring these pathways that we can come to understand systems.

System Building Blocks – Reinforcing and Balancing Processes

A system is cyclical, rather than linear, made from two types of feedback loops. There are those that positively reinforce behaviours and those that ‘balance’ a system, known as negative or self-regulating loops (Maani & Cavana, 2007). The nature and direction of how these variables influence each other helps us to understand the dynamics of a system. The act of collectively mapping and agreeing on the causes and effects we are seeing supports us to identify the leverage points for intervention.

An example of a reinforcing cycle is the relationship between births and population levels, in that the higher the population, the more births will occur, increasing the population, and so on. A balancing cycle is that with an increased population, the more deaths will occur, which will reduce the population and have a balancing effect on the population and birth cycle. As we know, there

Adapted from Introduction to Systems Thinking (Maani & Cavana, 2007)

[Figure 12]
Reinforcing and Balancing
Feedback Loops (Maani & Cavana,
2007)

are many more variables that impact on populations, and in seeking these and defining how they interact that we can find intervention points.

Approach

There are various approaches and methods within the fields of systems theory, systems dynamics and thinking (Maani & Cavana, 2007). A general approach to systems thinking tends to involve a series of steps to define and understand a problem in terms of its key variables and to find patterns in behaviours over time, feedback loops and potential archetypes at play. From these insights leverage points are identified and interventions designed and implemented. A general systems thinking approach tends to follow the steps outlined in the figure below.

Adapted from Maani & Cavana, 2007

[Figure 13]
A Systems thinking approach
(Maani & Cavana, 2007)

COMPLEXITY THEORY AND SENSEMAKING

As outlined already, ‘wicked’ problems are defined by their complexity and systemic nature, and in fact may have only been helpful as a concept preceding a better understanding of complexity within social and natural science (Peters, 2017).

As such, understanding what complexity is, complex systems are and how we might operate in them becomes valuable as we seek to make systemic change in them.

Introduction

Complexity theory is less a discipline and rather a body of concepts from natural and social sciences, human behaviour and organisation studies (Eppel, 2009). It is not just a methodology or a set of tools, although it can provide both; instead, it provides a conceptual framework as a way of thinking and seeing the world (Mitleton-Kelly, 2003, as cited in Eppel, 2009).

Conceptually, it challenges traditional notions of objectivity and rational order embedded within the scientific method (Eppel, 2009), key assumptions underpinning our dominant ways of thinking in western society (Snowden, 2003) and that inform design and decision-making. These are (Kurtz & Snowden, 2003):

Assumption of order: this is logic-governed, assuming that cause and effect are underlying relationships in systems that are capable of discovery and empirical verification and that it is possible to predict outcomes and effects, and design interventions to achieve desired goals. It implies that there must be a right or ideal way of doing things (Goh, n.d.).

Assumption of rational choice in people: that people are self-interested and all-knowing, rational actors who make decisions purely based on maximising pleasure and minimising pain, and that people can be managed through the manipulation of pain or pleasure outcomes and education of consequences.

Assumption of intentional capability: that the acquiring of a capability suggests an intention to use it, that people are logical and do the things they do deliberately. We accept that we may do things by accident, but assume others do things 'on purpose' (Kurtz & Snowden, 2003; Goh, n.d.).

Complexity theory posits that these assumptions may be correct in some contexts, but not in all; yet they underpin our conventional approaches, techniques and tools for decision making and designing interventions (Kurtz & Snowden, 2003). Embracing complexity involves accepting that we are unable to know, predict and control the effects of changes in a complex system, allowing emergent effects to surface and evolve (Goh, n.d.). It acknowledges the complexity, multitude and flexibility of human identity, and that our identities can be contextual and situational, and that we are a complex mix of knowledge, power and identity whose actions are influenced by the knowledge-generating system we are a part of.

Key concepts

Complex adaptive systems are non-linear, have disproportionate and unpredictable responses to changes (Lewin, 1993, as cited in Eppel 2009), with these dynamics emerging from interactions between the external and internal parts with continual change in those parts and the whole (Eppel, 2009). The distinction from other concepts of systems (as discussed earlier) is that they are unpredictable in any accurate sense (Eppel, 2009) and only understandable in hindsight.

Human social systems and society can be defined in terms of complex systems, made of a large number of elements (people), who are interdependent and interact dynamically through rich, diverse patterns of interconnections and information sharing (Cilliers, 1998 as cited in Eppel, 2009). These relationships are non-linear, with feedback loops within them, and are skewed by power and exploitation with people (elements) influencing each other and themselves. As part of a system, we are unaware of the behaviour of the whole, not being able to control it or even fully understand it.

Historicity relates to complex systems having a collection of histories that influence people, interactions and systems, often in ways that we cannot see, interpreted in diverse and potentially conflicting ways (Eppel, 2009). The history of a system influences the starting point for any change and, combined with feedback loops, creates path dependencies (Fisher, 2019). Path dependencies are how the set of decisions we have available to us are shaped by the decisions or experiences we have had in the past (Eppel, 2009).

Exploring the stories of these histories can help us make sense of a complex system, providing the space for new possible futures, and shifting to an 'adjacent possible' (Snowden, 2018). What proves important is exploring how people describe the past and present, and in shifting these day-to-day narratives so that an alternative, new future can be created.

A complex system is understood in people's day to day experiences and interactions, in what is often considered anecdotal and qualitative data. It is in understanding how people make sense of the world, people's ways of thinking and seeing, that a system is defined (Snowden, 2018). It is in exploring 'paradoxes' in people's experiences and the feedback loops that are driving them, that we are provided with insights and opportunities for significant change (Morgan, 1997 as cited in Eppel, 2009).

Complex systems operate in a 'far-from-equilibrium' state requiring constant flows of energy and resources to change, evolve and survive as an entity, not defined by its goals but rather as a process (Eppel, 2009). Because of this lack of stability, they experience relatively large changes in response to small stimuli. It is within this state that self-organisation, innovation and the emergence of new phenomena can occur, as a system is more likely to flip to a new trajectory.

Sensemaking

Sensemaking is a way of making 'enough' sense of the 'intractable' to move into continual 'action learning' and understanding (Ancona, 2012). It is a way of framing and structuring the unknown, so we are able to act (Weick, 2001 as cited in Ancona, 2012); an interweaving of our ways of seeing (ontology) and understanding of knowledge (epistemology) about our world (Kurtz & Snowden, 2003).

It is social, collective and iterative, engaging others in a process of 'figuring out' what we know (Ancona, 2012). It means interpreting and classifying information according to previous experience (Eppel, 2009) to identify patterns, labelling and categorising information to shift the 'complex' and unknown to the simple and 'known' (Ancona, 2009; Kurtz & Snowden, 2003).

Weick (1995, as cited in Eppel, 2009) views organisations as interpretive systems, in that people make sense of what that confronts them in ways that are grounded in identity construction; retrospective; social; ongoing; focused on, and by, extracted cues; and driven by plausibility rather than accuracy. These systems have two strategies in response to complexity, either reducing it with rules which allow codified or prescribed responses or absorbing complexity by holding multiple and at times conflicting perspectives of reality and a variety of behavioural responses.

It is in the latter that we have behavioural flexibility, with responses that may not be 'perfect' but means having responses for a higher number and a wider variety of issues.

Approach

A principal sensemaking tool is the 'Cynefin Framework'; a Welsh term whose metaphorical meaning is 'the place of your multiple belongings'. The idea is that we are rooted in many different pasts that profoundly influence who we are but that we can only ever be partially aware of (Snowden, 2018). It is a phenomenological, collective, contextual sensemaking framework that can identify how people perceive and make sense of a situation (Eppel, 2009).

The framework supports us to make sense of what type of system domain we may be operating in, whether that of ordered systems or unordered systems. Commonly, when we start in sensemaking, we are in a 'disordered' state, which means we do not know where we are or what is happening (Snowden, 2018). Dimensions are 'that which is known' and 'that which can be known'; or what can be known with the reasonable application of expertise, time and resources (Kurtz & Snowden, 2003).

[Figure 14]
Cynefin Framework (Eppel, 2009, & Kurtz & Snowden, 2003)

Most of our conventional approaches operate within ordered systems. In the domain of 'known', causes and effects are repeatable, and we can apply best practice. In the 'knowable' domain, causes and effects are separated over time and space, but knowable (Maani & Cavana, 2007). In this domain, we make sense of what is happening for and with analysis to determine the right response; arguably this is the domain of systems thinking (Maani & Cavana, 2007) and 'design thinking' approaches (Snowden, 2013).

The domain of complexity is where cause and effect are only known in retrospect and are unlikely to repeat (Kurtz & Snowden, 2003). Approaches appropriate for 'complex' domains involve 'safe to fail probes', which are small-scale, contained experiments designed to make emergent patterns or potential patterns more visible before we take any action (Kurtz & Snowden, 2003; Cognitive Edge, n.d.) – allowing us to sense what is happening and respond accordingly.

A helpful analogy for thinking about operating within complexity is that of a kindergarten teacher, where success is in embracing emergence instead of planning, or attempting to predict and control behaviours or needs. Experienced teachers allow a level of freedom, intervening for the sake of 'stabilising' or amplifying the desired behaviours (patterns) and destabilising or dampening the undesired ones (Kurtz & Snowden, 2003). Most importantly, they 'seed the space' so that the patterns they desire are more likely to emerge; in this analogy, this could be containing the environment, introducing certain toys and activities and including educational moments within children's play.

There are three critical strategies for managing in complexity: defining boundary constraints, designing catalytic probes and amplifying and dampening strategies (Snowden, 2018).

[Figure 15]
A complexity and sensemaking approach (Snowden, 2018)

CRITICAL THEMES AND CONCEPTS FOR CHANGE

This chapter outlines some key themes and concepts that have emerged in the research that are not part of a specific discipline per se, but may be significant contributions to understanding people and the challenges they are experiencing, with considerations for how we might work with them.

Social Justice and Dealing with Disparity

The 'wicked' issues being faced globally and locally are experienced inequitably, with specific portions of our populations carrying the burden of these more than others. As such, to address these issues, engaging with social exclusion and disparity is required. As stated by McKercher (2017), we are not doing social innovation, if we are not addressing disparity. However, there is not a definite agreement on the nature of the role and relationship between social justice and social innovation; it is arguably difficult for any practice seeking to enact systemic social change to not engage with these notions in some shape or form.

Social justice is both a social change practice and desired outcomes, with a history of activism, often referred to as a 'grass-roots' movement and community development. It can be defined as people experiencing full participation in society with the balance of benefits and burdens shared by all citizens, resulting in equitable living and just social ordering (Buettner-Schmidt et al., 2011). It includes fairness; equity in the distribution of power, resources, and processes that affect the sufficiency of the social determinants of health; just institutions, systems, structures, policies and processes; and equity in human development, rights, sustainability and sufficiency of well-being.

Struthers (2018) considers how we might have social justice practices that foster invention or social innovation practices that advance equity, positing complementary and contrasting dimensions as a locus for emergent and creative practices. These dimensions are:

Call to action: practice for equity, justice and inclusion vs social problem finding and solving.

Practice paradigm: resistance politics (justice actions) vs invention and innovation.

Thinking model: critical and sceptical thinking vs asset-based and opportunistic thinking.

Result orientation: access to justice and equity vs improved social outcomes.

Relations of power: influencing government (government as an ally, within a pluralist and inclusive society) vs partnering with business (characterised by government fiscal restraint).

Approach to language: nuanced and power-aware (precise and politicised) vs loose and constantly changing (highly inclusive 'if you are in the room').

Who is at the table: intentional inclusion vs whoever shows up.

Partnership: trusted allies, with shared values and mitigating unintended consequences with choice of partners vs generative relationships, creating relationships with different types of organisations, seeking resources through dominant system actors.

Pertinent here is the position on inclusion, where social justice promotes specific forms of inclusion, creating avenues and practices for marginalised

voice and participation. Social innovation, on the other hand, can be criticised for encouraging and replicating mainstream participation, engaging with predominantly white and middle-class spaces (Struthers, 2018).

Social innovations can be far-reaching and often not bound by traditional boundaries and relationships, yet while a particular solution may serve social inclusion, it can lack a more in-depth analysis and understanding with unintended consequences. A social justice critique of this is that, despite creating an improvement in the lives of a few, this inadvertently does harm, reinforcing an existing system of injustice and exclusion (Struthers, 2018).

Intersectionality

As outlined previously, embracing and appreciating the diversity and complexity of the human experience is a critical aspect of understanding systems, taking a pluralist perspective and understanding disparity and inequality. Intersectionality may prove to be a useful framework to do so.

“The intersectional framework offers us... the potential to capture the complexity of social life and the social inequalities embedded within it, to clarify the proximate factors producing injustices, and to work toward social change” (Howard and Renfrow, 2014, p.115).

Historically there has been a loss of thinking about the complexity of issues and the potential power of working in complex groups (Woehrle, 2014). The outcome has often been to define people and their experiences in simplistic and one-dimensional terms. Yet, understanding people who are being marginalised in multiple ways is important, as framing disparities with single dimensions of inequity can conceal the difficulties people face within multiple marginalised social categories (Jackson, 2016). As such intersectionality explores the relationships amongst multiple dimensions and forms of social relations and subject formation (McCall, 2005, as cited in Angelucci, 2017).

Intersectionality attempts to identify how interlocking systems of power impact those who are most marginalised in society. Kimberlé Crenshaw (1991), explicitly named the concept of intersectionality when referring to the interweavings of multiple categories of oppression. For example, this includes the ways in which race and gender compound and complicate each other, recognising that numerous oppressions work together in a way distinct from discrimination based on either race or gender alone (Crenshaw, 1991).

Intersectionality provides a space for pluralism in our understanding of the dynamics of social systems, uncovering contradictions and unintended consequences that may produce or even deepen inequalities by well-intended

individuals and institutions (Howard, 2014). It offers us a way to re-think social categories as dynamic social processes, as intersectional analysis can examine the way in which categories intertwine (Angelucci, 2017), and the processes of differentiation and discrimination standing at the crossroads among them.

In this context, it may provide us a lens for addressing the complexity and multidimensional nature of social disparity and inequities experienced within the 'wicked' problems we are addressing. Intersectionality as a conceptual framework is all about power dynamics within a society and seeks a fuller explanation for why some people experience discrimination (van Buren, 2015).

Trauma and Adversity

Social innovation and co-design need to be: “clearly positioned as a strength-based practice that draws on the evidence of protective factors of what’s understood to be community asset development.”

In attempting to address 'wicked' problems and socio-economic exclusion, we often find people who have and are experiencing significant forms of psychological trauma and adversity. Trauma is a result of violence, neglect, abuse, loss, disaster, war, historical injustice and other emotionally harmful experiences (Te Pou, 2018). For example, women experiencing homelessness often have lived with the stress and trauma of family violence and distress related to mental health and addictions (Bukowski, 2009). The adverse effects of these experiences of trauma have a profound impact on a person's mental, physical, social, emotional or spiritual well being (Te Pou, 2018).

Trauma-informed practices and services are strengths-based, grounded in an understanding of and responsiveness to the impact of trauma, emphasising the physical, psychological, spiritual and emotional safety for all involved. Principles underpinning trauma-informed approaches include safety; trustworthiness and transparency; peer support; collaboration and mutuality; empowerment and choice; and an awareness of cultural, historical and gender issues (Te Pou, 2018). They aligned with the previously outlined 'peer-to-peer' mental health support principles.

“It’s adversity informed. You know there’s definitions of trauma. You may not have had an extreme encounter with abuse, but a sustained experience of poverty and deprivation can have the same effect. And so maybe there’s a broader thing to look at there, but at the heart of understanding what it means to work in those spaces I think that’s deeply true [trauma informed practice].”

The definitions of trauma and stressor-related psychological disorders are specific and event-related. They prove helpful for clinical diagnoses; however, they fail to account for individual and collective long-term chronic and complex trauma (Wirihana & Smith, 2013). They are especially failing to account for historical and intergenerational traumas, such as those experienced by indigenous populations due to assimilationist colonial practices.

In Aotearoa, the impacts of colonisation on the wellbeing of Māori, of historical trauma and its contribution to the disparities being experienced need to be considered in any trauma-informed approach (Te Pou, n.d.). For Māori, nearly two-thirds of adults have experienced one or more traumatic events, compared to half of adults in the general population (Te Pou, 2018).

A broader understanding of trauma, adversity, and what is being termed 'toxic stress' is necessary to inform our practices within these spaces (HDCC, n.d.). They relate to experiences such as physical or emotional abuse, chronic neglect, caregiver mental-health distress and addictions, exposure to violence, or the accumulated burdens of family economic hardship. It should be understood that prolonged exposure to these adversities and toxic stress, particularly for children significantly impairs learning, behaviour, and health across a person's lifespan

The focus in this work is on reducing stress, building responsive relationships and strengthening life skills (HDCC,n.d), in essence enabling the capability and capacity of those having these experiences for wellbeing and participation within society.

These provide us with a framework for addressing these experiences within our systems, processes and practices; asking how might these insights inform our approaches with people and how we may build systems that are grounded in these principles and aspirations for people.

Tangata Whenua – Indigenous Peoples and Knowledge Systems

This theme explores potential opportunities and responsibilities for practitioners in engaging with indigenous peoples and knowledge systems.

While Māori are often framed in deficit terms in regards to social and health outcomes and disparities for Māori are well evidenced; there is also great potential in engaging with Indigenous peoples, cultural values, ways of knowing and being (ANZSOG, 2019). These enhance the range of possibilities for addressing social and environmental challenges (De Bruin & Read, 2018) and recognise if we want to change outcomes for and with indigenous peoples, we can only do so by understanding and respecting Indigenous peoples and knowledge systems (ANZSOG, 2019).

“We must all take responsibility to imagine a future where Indigenous people thrive, and we must do whatever it takes to reach that future” Professor Marcia Langton AM (ANZSOG, 2019).

Culture is crucial to the wellbeing of indigenous peoples and communities, investing in it can build and improve trust and relationships between communities, government and other agencies operating within social change (ANZSOG, 2019). As such, the integration of our cultural context is integral to generating innovative, collective solutions for complex social problems and achieving systemic social change (De Bruin and Read, 2018).

It is critical that we understand the rights of and our obligations to Māori as tangata whenua (people of this land) in Aotearoa, especially when considering the earlier discussion on participation, power and self-determination. A recent Waitangi Tribunal kaupapa inquiry provides clear direction that when operating within systems that are impacting on social and health outcomes for Māori, that we have obligations under the Te Tiriti o Waitangi\ \ \ \ \ The Health Services and Outcomes Inquiry in its first stage report has found that:

“The primary health care system fails to address adequately the severe health inequities experienced by Māori. Further, the Crown failed to lead and direct the primary health care system in a way that adequately supported and resourced Māori to design and provide for their wellbeing through designing and delivering primary health care to Māori. The Crown’s failures prejudicially affect the ability of Māori to sustain their health and wellbeing.” (Waitangi Tribunal Report, 2019, p.161).

Critically, the Crown has failed to ensure that everyone working in the primary health care system is aware of their te Tiriti obligations.

“As Pākehā we need to be honest and have a bit of courage and look at what it is we have actually done. And what we have done is create the landscape where things work for us the most. I’m not sure why it is that it is so hard to get that across in a way that Pākehā will hear it. Even in the social sector there is all of this strategic movement and policy documents that say we are here for Māori and Pacific empowerment but it all has to be through our Pākehā paradigm.”

Te Tiriti o Te Waitangi

Successive settler governments have breached Aotearoa’s founding document, Te Tiriti - The Treaty in terms of actions, inactions, laws, and policies and, as a result, Māori have suffered prejudice and harmful effects (De Bruin & Read, 2018b, Waitangi Tribunal, 2018).

Some core principles within te Tiriti include (Waitangi Tribunal, 2018):

Partnership: to act towards the other 'with the utmost good faith' which is the characteristic obligation of the partnership.

Reciprocity: that the partnership involves fundamental exchange for mutual advantage and benefit.

Autonomy: the mutual recognition of *kāwanatanga* (governance) and *tino rangatiratanga* (full authority), to determine their own internal political, economic, and social rights and objectives, and to act collectively in accordance with those determinants.

Active protection: the duty to protect Māori rights and interests, requiring honourable conduct, with a fair process, full consultation and decision making by those whose interests are impacted where appropriate (Waitangi Tribunal, 2018).

Options: as an Aotearoa for two peoples with their own laws and customs, in which the interaction is governed by partnership and mutual respect.

Mutual benefit: that colonisation of Aotearoa was to be to the mutual benefit for both Māori and settlers, including the retention of sufficient Māori land and resources.

Equity: obligations arising from *kāwanatanga*, partnership, reciprocity, and active protection so that Māori are treated fairly, and the interests of settlers are not prioritised over that of Māori.

What is proving crucial is to understand how as practitioners, we can engage with indigenous peoples and their knowledge systems in ways that uphold the principles of the Treaty and do not repeat paradigms of colonialism and appropriation.

“You can’t engage in the practice of social innovation if you’re not engaging in the history of colonisation and indigenous knowledge systems”

“It’s a deep tension. And the rules are different everywhere you go. And there isn’t one clear way to know the answer. But there’s no doubt that there is paralysis in this work because of a fear between Māori and Pākehā relations”

The western paradigm tends to position the researcher or designer as an 'objective' and 'neutral' (Wilson, 2001) observer of people and phenomena, yet western researchers bring particular values and concepts of time, space, subjectivity, gender and knowledge shaped by imperial and colonial discourse. Rather, the pursuit of knowledge has been deeply embedded with colonialist constructs and practices, and considering research methodologies and indigenous people cannot be done without an analysis of these (Tuhiwai Smith, 2012).

We need to acknowledge that our dominant problem-solving and action-oriented models of design can be critiqued for being monocultural, eurocentric and embedded with neoliberal values (Akama 2018, as cited in Blomkamp 2018).

“Co-design ... and design practices come across as operating in a vacuum. And [people] don’t bring with them the history of the place. And if you’re working in social innovation in Aotearoa or in other colonised countries, there’s a very deep history to where you’re starting.”

The history and present-day impacts of Aotearoa’s colonial history are too broad and deep to cover effectively here; rather this research states the importance of doing so. As practitioners, it is crucial that we recognise the historicity of the challenges we are addressing and approaches we bring to them.

Deep Cultural Values and Value

“[Engaging with indigenous knowledge] provides us an opportunity to reconnect that which western concepts have disconnected”

There is a growing recognition that indigenous cultural values can form the basis for social innovations striving for transformative societal change (De Bruin & Read, 2018b); in that heterogeneous societies with diverse cultures have greater space of possibilities for innovation incorporating cultural values and indigenous knowledge. As such, Mātauranga Māori is proving an important catalyst of social innovation in Aotearoa (De Bruin and Read, 2018a).

Mātauranga Māori refers to the Māori way of thinking, being, and acting, and it is social in how it sustains relationships, conducted in relation to place, history and within tikanga (practices and customs) (Doherty, 2012, Durie, 1995 as cited in De Bruin and Read, 2018b). Māoridom is an adaptive social system of interrelationships and interactions underpinned by cultural values, a source of community resilience and potential for transformational social change and innovation (De Bruin & Read, 2018a).

There are increasing assertions from Māori for the need for culturally congruent solutions to intractable issues and the disproportionate experience of them (De Bruin & Read, 2018a), advocating for Māori autonomy and solutions drawing on indigenous knowledge and social capital. It is important then, that we have effective processes and mechanisms to ensure meaningful engagement and participation of Māori in all decision-making processes affecting their rights (UNCES, 2018).

An example of deeply culturally grounded, participatory practice within

Aotearoa that is proving impactful is the The Southern Initiative, a place-based initiative in South Auckland. It has a whānau-centred approach, focused on systems change for transformative outcomes of a range of social, economic, cultural and environmental issues (Burkett, 2017).

The co-design practices are owned by the communities rather than by institutions and professionals, making the issue of power visible and grounding the practice of co-design in a cultural worldview and context. In this way co-design is an authentic, collaborative practice rather than one about 'co-option'. They define tikanga Māori principles in their practice as:

Manaakitanga: the act and process of showing respect, generosity and care for others.

Whakawhanaungatanga: the process of establishing relationships, relating well to others.

Tino Rangatiratanga: ensuring we are sharing power and control where possible.

Whakamana: empowering whānau.

Ako: a mutually reinforcing learning environment.

“There are lots of opportunities to demonstrate what it means to practice the treaty in action – what it looks like to realise the intent of the obligations that we have.”

Indigenous Innovation, Approaches and Solutions

Indigenous peoples have a rich history of exploration and innovation. They live and breath daily practices in ways of working together collectively, taking risks, embracing ambiguity to address social challenges and ensure the continuation and betterment of their peoples (Davis, 2013).

“We use the European terminology [for innovation] of agility, lean, a co-design process or design thinking. These things [mind-sets of experimentation and voyaging] are actually natural for Māori [and Pasifika], but they haven’t labelled them, they have just lived them”

“Innovation is considered innovation so long as it is understandable by Pākehā innovation. Otherwise it is considered to be high risk, to be ill informed, and to not be as valuable. And that really is the basis of systemic racism in our country”

An exemplar of this within Aotearoa is Whānau Ora, which is a state response to longstanding, negative outcomes for Māori in economic and social well-being. It acknowledges and strengthens the connectedness of whānau and their inclusion within society (De Bruin & Read, 2018a). It has six major goals

of whānau self-management, creating healthy whānau lifestyles, enabling full whānau participation in society, confident whānau participation in te ao Māori, economic security and successful involvement in wealth creation, and whānau cohesion (De Bruin & Read, 2018a).

It is a 'bottom up' strategy, focussing on whānau as a site of remediation and regeneration, aiming to impact the contexts whānau are living in; building social, cultural, economic and educational capital within whānau to achieve physical, spiritual and mental well-being (De Bruin & Read, 2018a). Whānau Ora seeks to foster better relationships and connections between Māori and the state, enhancing the well-being, participation and empowerment of Māori in Aotearoa society.

It is important for us to understand Kaupapa Māori approaches which are those by Māori, with Māori and for Māori. Kaupapa Māori is described as a methodology, an approach and framework for cultural safety and an inquiry paradigm (Cram, 2017). Kaupapa Māori ontology articulates what it means to be Māori, within a Māori world which is about relationships and connectedness to people, the environment, and the cosmos. Its key principles are:

Tino Rangatiratanga, self-determination, allowing Māori to control their own culture, aspirations and destiny.

Taonga Tuku Iho, cultural aspiration, Māori ways of knowing, doing and understanding the world are valid in their own right, where spiritual and cultural awareness are taken into account.

Ako Māori, culturally preferred pedagogy, teaching and learning practices that are inherent and unique to or preferred by Māori.

Kia piki ake i ngā raruraru o te kainga, socio-economic mediation, alleviating negative pressures and disadvantages experienced by Māori communities. Acknowledging that Māori-derived initiatives are valid and successful interventions in systems for addressing socio-economic issues.

Whānau, extended family structure, is at the core of kaupapa Māori. Acknowledging the relationships that Māori have to one another and to the world, with whānau, and whakawhanaungatanga as key elements of Māori society and culture.

Kaupapa, collective philosophy, the collective vision, aspiration and purpose of Māori communities, any intervention need to contribute in some way to the overall kaupapa.

Te Tiriti o Waitangi, the Treaty of Waitangi, this defines the relationship between Māori and the Crown, affirming tangata whenua status. It is a way Māori may critically analyse relationships, challenge the status-quo, and affirm Māori rights.

Ata, growing respectful relationships, a transformative approach building and nurturing of relationships and wellbeing. It involves negotiating boundaries and taking actions to create and hold safe space and accords the quality space of time (wā) and place (wāhi). It demands effort and energy of participants, conveys the notion of respectfulness and reciprocity and requires reflection as a prerequisite to critical analysis.

The role Māori and Pākehā practitioners take are different, while supportive and complementary, as they work together and in parallel. It is critical for Pākehā to become familiar with te ao Māori, to support and advocate for Māori colleagues and Mātauranga Māori's role within our practices (Cram, 2017). It means acknowledging the emotional labour for our Māori colleagues working in a bicultural context; an experience, skill and task that Pākehā do not intellectually or emotionally have to deal with (ANZSOG, 2019).

However, it is neither appropriate nor welcomed for Pākehā to represent Māori worldviews (Cram, 2017). Key considerations for practice are how we may engage with indigenous peoples and knowledge in ways that are respectful, reciprocal and empowering, recognising when approaches may be better led by Māori, for Māori and with Māori and the role Pākehā practitioners and organisations can play in this.

As already discussed, the challenges we are seeking to address are social, complex and adaptive, operating in systems and the experience of them is often diverse and disparate. As such, our responses need to reflect this in their nature, and the question becomes whether we can embrace a shift in perspective, and redefine our roles as supporters of adaptive processes of change (Australian States Commission, 2007).

Seeding the Conditions for Change

The act of defining a 'problem' to 'solve' is integral to most conventional methods in some shape or form, tending to analyse a situation, reducing it to its parts, identifying a cause and focusing on a solution to that. Isolating a 'problem' from its context, environment and external factors, and assumes that an 'optimal' solution can be found (Maani & Cavana, 2007).

Conditions that Create Challenges

This removes complexity, adaptiveness and renders multidimensional and evolving causal and conditional factors into single dimensions, creating linear problem framing and definition. The 'law of the instrument' comes to mind, in that "it is tempting, if the only tool you have is a hammer, to treat everything as if it were a nail" (Maslow, 1966, p.15). A problematic approach, with 'wicked' problems, have no agreed definitions, their causes or 'right' solutions, as Rittel (1973, p.155) states:

"In a pluralistic society there is nothing like the undisputable public good; there is no objective definition of equity; policies that respond to social problems cannot be meaningfully correct or false; and it makes no sense to talk about "optimal solutions" to social problems unless severe qualifications are imposed first."

We are no longer designing for one-to-one relationships between problems and solution/s. A systems orientation leads us to consider the conditions and dynamics of problems, aiming to shift system levers that change how the system operates. We should be pursuing new ways of thinking, being and doing and most sustainably embedding the capability and conditions to continue doing so within a system (Kim, 1999; Senge 1990, Meadows, 1999).

We need to move beyond problem-solving and start tolerating ambiguity and the need for different and longer-term focuses for systemic change (Australian States Commission, 2007). These challenges require comprehensive resolutions that adapt in the light of experience and 'on-the-ground feedback'; adopting innovative approaches that may have unpredictable results, occasional failure and drive the need for significant shifts in our understandings and positions. Notably, and where participatory design proves helpful, this requires the genuine participation of actors across a system and privileging lived experience as a site of creativity and 'knowing'.

“If you think about change as the outcome, not about the end of the design process as the outcome, I think you do it really differently, because your eyesight goes to the horizon of the change.”

It is the interconnections between issues impacting people's lives that need to be identified and addressed; with a reflective capacity and ability to effectively communicate the complex and systemic nature people face (Burkett, 2017).

“Because it has to be about a set of conditions that underpin all of those issues, focuses we might take, not about the issue's focus itself”

“We were quite intentional about talking about the conditions under which wellbeing is enabled and of course there's individual agency in that. [And] You can't expect high levels of agency when actually what they're doing right now is just getting through the day.”

We need to address the underlying causes and structures of challenges and build the conditions required for thriving, responsive social systems, with better ways to engage the strength and diversity of people most affected by these challenges and to build social adaptivity and resilience within all levels of our social systems.

Conditions for Change

“What [is] needed [is] to build a better set of conditions that being whatever you do in social innovation space, whether it’s [innovation practitioners/consulting firms], or community. That the systems that meet you when you’re trying to implement those things or scale those things or evaluate those things or learn from those things are being a welcoming state of conditions.”

As evidenced within the various disciplines, the conditions for complex systemic change are proving to be as important as any of the new ideas and innovations that are created (DESI n.d.; Murray et al., 2010; Kurtz & Snowden, 2013). This relates to addressing the conditions that create the issues we are looking to address and the conditions that are required for our new concepts, ideas and innovations to embed and be successful.

This requires us to take a holistic and strength-based approach to discover which conditions contribute to positive outcomes and resilience for people, and that which diminish them.

Complexity theory also posits that our responses need to seed the conditions that increase the likelihood of our desired outcomes and patterns emerging, like kindergarten teachers (Kurtz & Snowden, 2013).

Adaptivity, resilience and the ability to transform are therefore crucial for a dynamic, diverse and thriving social system that can self-resolve and adapt as is required to internal and external change (Westley, 2008). As stated already, the inclusion of those historically excluded as active participants and contributors enables our systems to grow and innovate (Stroh, 2015) and enables social system resilience (Westley, 2010).

Creating these conditions for social innovation for systemic change is fundamentally a process of changing social relations; it is in these new, reframed or alternative interpersonal relations that enable us to create the right conditions to challenge, alter, or replace the dominant institutions (Haxeltine et al. 2017). We are aiming for new, diverse institutional forms that create space for peoples, different cultures, values, aspirations, and circumstances.

Fundamental in this is the act of diverse and collective convening, connecting people and creating new relations to catalyse change. The intent of this convening is less on coming together to ‘solve a problem’; rather, it is to build the relations, connectivity and capital that create the conditions for change.

“We think that what the field catalysts needs to do is convene across this ecosystem. And in their convening, build a new set of capacities and capabilities. We don’t necessarily need to take issues and try to solve them ... [rather] there’s new capabilities that are needed across this entire ecosystem”

Adaptive and Resilience Social Systems

Key to adaptability and resilience is the ability to organise and mobilise collective intelligence towards shared goals or tasks, in which social connections prove a vital contribution (Goh, n.d.). In economics terms this is referred to as social capital, the “social connections, attitudes and norms that contribute to societal wellbeing by promoting coordination and collaboration between people and groups in society” (Makhlouf, 2018, paragraph 2). The key indicators of social capital are (Treasury, 2018): pro-social behaviour - civic engagement; pro-social norms - generalised trust; feelings of unity - strength of (national) identity and Institutional trust - trust in institutions and compliance with laws, e.g. police and tax.

Social capital can contribute to a sense of belonging and provides social support mechanisms (Frieling, 2018). Societies with higher social capital have lower crime rates, better democratic functioning and economic performance, higher educational outcomes and levels of individual health and wellbeing (Makhlouf, 2018). It is also seen as a contribution to different forms and levels of innovation and organisational creativity and linked to various organisational dynamics (Sözbilir, 2018; Landry et al., 2002; Camps, & Marques, 2014). This means that social capital may contribute to our capability and capacity for responsiveness, resolution and social innovation, as well as the efficacy of the initiatives, policies and interventions we design.

To enact systemic change, we need to design approaches, solutions and interventions that actively seek to shift the conditions that generated the issues – amplifying the emergent patterns, conditions, capabilities and capacities to enable ongoing resolution, social adaptivity and resilience. It may prove to be a requirement that we reflect these in ourselves, our practices and in partnership with the people we are seeking to re-engage within our social systems. So we are then able to build these in others and in to our systems.

CONCLUSIONS: KEY WAYS OF THINKING, BEING AND DOING

Insights from this research have been synthesised in a framework, inspired by the Yale School of Management education model of 'systems change' as an approach that embraces complexity with an action-oriented change mindset (Papi-Thornton & Cubista, 2019.) It is intended as a 'prototype' framing for interpreting and integrating the key ways of thinking, being and doing, to enable reflective practice in engagement with and contextualisation of the core concepts.

Focus areas

[Figure 16]
A framework for interpreting and integrating research findings and insights; Focus Areas.

Critical enquiry and inner work

At the core is our ability to critically and continually question our own constructs, mental models and ways of thinking, being and doing. It is our identity journey, taken in our relations with others to address and reinterpret our understandings of historicity, power, privilege, cultural values and worldviews. Recognise our worldviews and mental models, as merely one way of viewing the world in which “the biggest thing a...researcher can bring is an open, reflexive mind and the knowledge that their world is just one of many” (Cram, 2017, p.6).

“You have to go on an identity journey.”

We need to cultivate ways of being that support and enable healthy and thriving people and human systems, by taking a strength-based approaches that enable wellness. We need to focus on relationships, whanaungatanga and social capital, not merely as an activity within our engagements but for the more profound meaning and sense of belonging that these bring.

Central to this is the premise that who we are is a defining element of our practice, as it shapes the way we think, see and act in the world, asking what change is required of ourselves to reflect the changes we need within this system.

The Learning Orientations

Learning orientations (Senge, 1990) provide a useful and holistic means of how we may approach and collectively learn within the systems we are engaging with. This incorporates the five disciplines, including systems thinking methods and tools (outlined previously).

Creative orientation: the sense of authority and drive to act, to embrace paradoxes and tensions as creative opportunities for change.

Generative conversation: bring things into being that do not currently exist (Kim, 1999), engaging in dialogue that surfaces assumptions, clarity and enables collective learning.

Systems perspective: enabling curiosity and optimism, embracing diversity as a strength and having a holistic, systemic view of people, challenges and opportunities for change.

A systems perspective requires us to consider our role and impacts within the systems we are seeking to understand and change, as we are part of that system (Stroh, 2015, Senge, 1990). We need to cultivate certain and new ways of thinking, being and doing, seeking areas of leverage within the dynamics of systems, for intervention to have the most significant impact and designing learning organisations and processes.

“[We need to] Have the flex and internal capability – what if I adopted a different way of being, knowing and doing into my world view.”

Systems theory posits that it is in changing underlying paradigms, world views and mental models we find systemic and sustainable change. It is in

embedding the ability to critique and shift these paradigms that we create adaptivity and resilience in a system moving forward. The capacity for critical enquiry of ourselves and our practices becomes essential to build the capability for enabling systemic change by exploring and developing these aspects of ourselves, and with others.

Participatory Design and Practice

Creative, design, action-oriented approaches, with mindsets grounded in an understanding of cultural values, participation, sharing and shifting power, privilege and prioritising lived experience in our practice. For discrete and specific approaches, and also for embedding in the systems, we are seeking to change.

The principles and practices of participatory and co-design can help us reconnect meaningfully with those historically excluded and underserved, engaging with them in ways that empower agency, self-determination and choice within our social systems and collectively defining the leverage and intervention points. This enables us to build the social connections and capital that provides resolution here and now, and resilience in the future.

It is critical that we are able to create space and psychological safety for all participants to be able to share in these ways of thinking, being and doing. These require us all to go against the forces within a system, requiring compassion and empathy for all actors, as there is no blame in systems work and we are all responsible for the system we are a part of (Senge, 1990).

Complexity and Sensemaking

For situations where our 'knowable' domain approaches and tools are not suitable we need the ability to make sense of the complexity we are facing collectively. This requires us to embrace ambiguity, collective convening and resisting our tendencies to respond in our default and the conventional ways that we know so well (Snowden, 2018).

This requires us to build and embed capabilities to deal with complexity with collective sensemaking and learning, with the ability to act in the present – designing strategies to amplify what we want to see and dampen those we do not, envisioning alternative futures and shifting the trajectory of the systems we are operating in.

Critical Themes and Concepts

The critical themes and concepts identified sit across all dimensions and focus areas, in ways that complement, contrast and in places conflict with some of the paradigms and theories contained within the various focus areas and disciplines. These tensions provide opportunities for critical enquiry and potential for change that we can embrace.

Next Steps and Further Research

Ongoing explorations and research methods would serve more practical expressions of design research, namely aiming for some balance between practice-led 'research through design' and research-oriented 'research for design' (Frankel & Racine, 2010), exploring these concepts in more practical and engaging ways.

This would be best done by engaging participatory methods for exploring, testing, validating and iterating these concepts in partnership with change agents, practitioners and those with lived experience in systemic change and social innovation. The intent would be to progress these findings with a creative and 'designerly approach' to generate helpful artefacts to enable reflective practice in engagement with and contextualisation of the core concepts.

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**MANAAKI WHENUA,
MANAAKI TANGATA,
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