**Abstract**

**Background:** Designing policy for mental healthcare transformation is attracting a wide interest in both design and health research, where service design and co-design are recognized as valuable approaches for addressing complex policy challenges. These challenges include fostering person-centred care with often misaligned mandates across the health and social services necessary for a recovery orientation. Integral to service design and co-design are the involvement of service users or people with mental health concerns. Service user involvement in mental health services has at least five decades of history, with service user movements developing in opposition to the biomedical model and psychiatric institutions. While service design and co-design initiatives to transform mental healthcare are promising, they are also controversial as they can challenge ideological paradigms, traditional treatment approaches and professional hierarchies. Designing for transformation in mental health services must account for these complex dynamics and controversy.

**Aims of Study:** To disentangle the contentious issues of designing for mental healthcare transformation; explore how collaborative design approaches can be facilitated; and highlight key considerations for research and practice in complex mental health systems.

**Methods:** This article brings together an interdisciplinary team of researchers investigating and applying service and participatory design approaches to encourage paradigmatic changes in the ways that people with mental health concerns are perceived and supported. Collectively, our experience touches on converging areas of study, such as therapeutic engagement, peer support, co-production and recovery within mental healthcare systems and policy across 10 projects in Italy, United Kingdom, Canada and Sweden. We employed a case study approach to explore the multifaceted issues faced when developing and delivering co-design initiatives in various mental healthcare settings. To facilitate cross-case reflection, emerging issues and insights from each of the cases were detailed. Then, by finding patterns across these cases, themes were established related to contentious issues, and key strategies to address them in light of concepts from complexity theory.

**Results:** A number of contentious issues were identified when applying design approaches to mental health policy. Each issue was clustered within overarching themes that include culture clashes (e.g. social vs. medical approach); power dynamics (e.g. defensiveness of traditional hierarchies); ensuring meaningful participation (e.g. authentic vs. tokenistic engagement); organizational constraints (e.g. operations vs. project time); and adopting a systems approach (e.g. working within and outside the health system) and analyzed using concepts from complexity theory. Design strategies to address each issue are presented.

**Implications for Healthcare Provision:** Design approaches can foster dialogue to deliver recovery-oriented services that better meet the individualized needs of people with mental illness.

**Implications for Health Policy:** Strategies are presented to overcome contentious issues in the mental health context that may otherwise impede mental health system transformation toward recovery-oriented policy and planning.

**Implications for Future Research:** Fostering greater interdisciplinarity in research to advance mental health policy presents new strategies to address long-standing challenges. The issues and strategies identified are a basis for an international research program in mental health policy and design.

**Title:** Applying Design Approaches to Advance Recovery-Oriented Mental Health Policy

**Introduction**

There is increasing recognition of the need for a major transformation of mental health systems from a traditional biomedical model toward a recovery model of care. Many Western countries, including Canada, England, Italy and Sweden, have adopted policies to support the implementation of a recovery model (Amering, Mikus & Steffen, 2009; Davidson, Mezzina & Rowe, 2010). The model is based on Anthony’s (1993) internationally accepted definition of personal recovery as: *“a way of living a satisfying, hopeful and contributing life, even with the limitations caused by illness”.* Supporting the recovery of individuals with mental health concerns requires significant multi-level changes, including in one-to-one interactions, in mental health services and systems, and in society at large. However, the transformation of these complex systems toward recovery is inherently contentious, as such changes challenge existing structures and power dynamics between actors.

One approach to supporting the transformation of mental health systems toward recovery that has been gaining interest in recent years is service design. Service design is a participatory, human-centred, creative and iterative approach to service innovation (Meroni & Sangiorgi, 2011). Appreciated as a complementary approach to quality improvement across different areas of healthcare (Bate & Robert, 2007), service design has gained momentum for its ability to leverage patient-centricity and collaboration in service innovation processes (Malmberg et al., 2019). However, operationalizing service design in the complex context of mental health systems requires recognition of the multiple, interacting issues and levels within the system that will influence the recovery of people with mental health concerns. While service design has been evolving in recent years to address greater levels of complexity (Sangiorgi, Patricio & Fisk, 2017), little is known about how it can best address the contentious nature of transforming mental health systems toward recovery.

As such, the purpose of this paper is to explore the contentious nature of mental health systems’ transformation and how this manifests in service design initiatives. Our specific research question is: *How can service design approaches help to foster transformative change toward a recovery-orientation in mental health systems amid contention?* To explore this question, we reflect on ten service design initiatives across four countries, analyzing the contentious issues that emerged, as well as the strategies that can be used by practitioners to achieve transformative change in light of these challenges. To support this analysis, we draw on concepts from complexity theory, which has been recognized as a valuable theoretical lens for building a holistic, dynamic understanding of change in complex healthcare systems (Greenhalgh & Papoutsi, 2018). In doing so, this research advances the discussion on mental health and service design by building awareness of critical issues that are likely to arise, and offering a starting place for how practitioners can approach such challenges.

We begin this paper with a brief overview of the contentious nature of adopting a recovery model of care and provide background on the service design approach in complex mental health systems. We then explain our multiple case study methodology and detail the findings from our analysis of the contentious issues and strategies through the lens of complexity theory. We finish with a discussion about the learnings from this study for applying service design to support the transformation of mental health systems toward recovery.

**The Contentious Nature of Adopting a Recovery Model of Care**

Recovery-orientated care grew out of the service user movement of the 1960s and 1970s as part of a backlash against psychiatry, long-term institutional care and the dominance of the biomedical model (Chamberlain, 1990). A recovery-orientation challenges traditional patient-clinician roles by bringing together both professional expertise and lived experience in a process of co-production, that supports people with mental health concerns to identify and manage their own health and social care needs (Phillips, Sandford & Johnston,2012). A recovery orientation also calls for people with lived experience of mental health issues to be directly involved in designing and planning mental health services (Piat & Sabetti, 2009).

While the recovery model is considered the gold-standard in many Western countries (Roberts & Boardman, 2013), there is still a great deal of variation in the provision of recovery-oriented care. Despite the recognized need for this approach, emerging user-led and co-produced practices remain marginal and struggle to become the norm (Slade et al., 2014). Path dependence limits opportunities for a new policy trajectory, as historical policies influence the unequal distribution of resources and incentives for different actors, and shape their ideas and worldviews that become resistant to change (Pierson, 1993). These legacies of prior policy make it difficult to shift to an alternative policy path when critical junctures arise.

Recognizing this path dependency, a recovery-orientation can be seen as contentious within existing mental health systems. A recovery philosophy challenges the limits traditionally set on people with mental health concerns and supports them having control over their own lives (Jacob, 2015). This can be seen as conflicting with traditional biomedical treatment options, placing less emphasis on diagnostic labels and tools, which some people with lived experience of mental health concerns find deeply oppressive (Perkins et al., 2018; Speed, 2006). The recovery model can also influence the dominance of physicians and challenge the power of other health professionals.

Some healthcare professionals may resist the greater involvement of people with mental health concerns in service design and delivery, as it can be viewed as an intrusion of unskilled workers in their jobs (Pestoff, 2006). In addition, favouring a more integrated and community-based approach can be threatening to existing mental health services that operate within siloed institutional structures. Furthermore, healthcare organisations can fear the risks that empowering service users through co-design might have on the individuals involved and the services they deliver. As such, supporting a transformation toward a recovery model of care involves careful attention to the contentious issues at play. However, it is not clear how best to deal with these issues when designing for the transformation of mental health systems.

**Service Design in Complex Mental Health Systems**

In mental health systems, service design is increasingly employed as a creative and participatory approach to supporting ongoing transformation. Service design has been called out as an important process and mindset for transformation that enables wellbeing and improves service outcomes (Anderson, Nasr & Rayburn, 2018). While the service design approach is aligned with several other collaborative approaches within the mental health system, it stands out for its focus on experience and integration of multiple stakeholder perspectives (Mulvale, Miatello, Hackett, & Mulvale, 2016). The engagement of patients and staff in service design is acknowledged as one approach to balancing service relations (Donetto, Tsianakas & Robert, 2014), while favouring the evolution toward co-produced forms of care (Freire & Sangiorgi, 2010).

The creative methods and tools of service design are often employed within mental health to help draw out the lived experiences of stakeholders to inform the design of solutions that most effectively meet their needs (Nakarada-Kordic, Hayes, Reay, Corbet & Chan, 2017), orient existing services toward recovery (Carrera, Sangiorgi, Foglieni, Segato, & Lucchi, 2018), or build design capacity in organizations to enable ongoing systems transformation (Pierri, Warwick, & Garber, 2016). Often service design works on all of these goals simultaneously (Szücs Johansson, Vink & Wetter-Edman, 2017). Service design principles have also been adapted into the process of Experience-based Co-design (EBCD), to support quality improvement processes that have shown promising results, such as reducing complaints in acute mental health settings in the UK (Springham & Robert, 2015).

Critical for its application to mental health, the field of service design is evolving to respond to increasing complexity in service systems and large networks of service providers and patients (Patrício et al. 2011; 2018). This includes an evolution toward a multi-level approach that involves designing service concepts across organizations which form a service ecosystem, and then focusing on specific organizations’ service encounters and touchpoints (Sangiorgi, Patricio and Fisk, 2017). Increasingly, service design approaches are being integrated with principles of complexity theory to better respond to the interrelated challenges of complex service systems, such as mental health care (Jones, 2013a; Jones, 2013b). In addition, service design literature recognizes that actors are embedded within competing institutional logics that represent socially accepted patterns of meaning (Arico, 2018). While these social norms, rules, roles and beliefs are resistant to change, service design has been recognized as one way to shift institutional logics in healthcare systems (Vink, Prestes Joly, Wetter-Edman, Tronvoll, & Edvardsson, 2019).

Building the *reflexivity* of actors has also been recognized a core mechanism by which service design facilitates the transformation of complex health service systems (Iedema et al., 2010; Iedema, 2011). Increasingly, reflexivity is being understood as a relational or collective ability (Donati, 2011, Archer, 2013), wherein groups reflect together on shared objectives and commit themselves to their achievement (Donati & Archer, 2015). The service design process aims to facilitate actors to instigate new forms of social change by building collective reflexivity, potentially impacting organisational systems and social structures in complex systems (Donati, 2011; Vink et al., 2019). Peer-to-peer networks and co-design can be seen as examples of where personal reflection and social interaction can enable new emergent social structures (Donati, 2011).

Recognizing the contentious nature of service design in mental health systems, including issues such as participants’ barriers to active participation (Tobiasson, Sundblad, Walldius & Hedman, 2015) and the decentralized nature of agency (Pierri, 2017), there is a need to build collective reflexivity to support transformation and have a better understanding of its role in transforming complex systems. While service design initiatives to transform mental healthcare are promising, they are also controversial as they can challenge ideological paradigms, traditional treatment approaches and professional hierarchies. As such, there is a need for further research on specific strategies for building the necessary reflexivity through service design to support the transformation of mental health system amid contention and complexity, recognizing the inherent resistance because of path dependence and existing institutional logics.

**Methodology**

This paper brings together an interdisciplinary team of researchers investigating and applying service design approaches to encourage paradigmatic changes in the ways that people with mental health concerns are perceived and supported. Collectively, our experience touches on converging areas of study, such as nurse-patient therapeutic engagement, peer support, co-production and recovery within mental healthcare systems in Italy, United Kingdom, Canada and Sweden. Our research domains span health research methodology, economics, social science, service design, and collaborative and applied health services research.

**Case studies**

To understand how service design can lead to transformative change in mental health at the individual through to service system, we used a qualitative multiple case study design (*n* = 10), informed by Yin (2009). A case is defined as a discrete project that used a participatory service design approach to transforming mental healthcare. Drawing on ten cases enabled an in-depth exploration of the multifaceted issues faced when using a service design approach, and an understanding of the commonalities in how these issues were addressed in various mental healthcare settings. The cases were draw from authors’ own practice using the following criteria:

1. Service design project that aimed to make significant changes to a mental health service or system;
2. Illuminated contentious issues that, in the opinion of the researchers, arose with particular acuity in the mental health context;
3. Active attempts had been taken to address and overcome these contentious issues within the project.

An overview of each case is provided in Table 1. The cases reflect a variety of jurisdictions, settings, contexts and populations, targeting changes within a single service, across multiple organizations, and throughout systems. Study duration also varied from 8 months to 3.5 years. The ten cases selected were at various stages of development when the analysis was conducted. Some were at exploration stage (i.e. seeking funding for co-produced work, gathering data to explore experiences of care), while others were at the implementation and evaluation stages. However, they all exhibit characteristics that illuminate key contentious issues and design strategies for working in this context.

Table 1: Details of selected cases

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Title** | **Description** | **Location** | **Context of Mental Healthcare** | **System Level** | **Patients** | **Project Phase** | **Duration and Status** |
| Case  1 | Applied service design to foster co-production and recovery across the services of a mental healthcare unit | Brescia, Italy | Community & mental health services offered by general hospitals | Organisational level | Adult | Planning, exploration,  co-design | 1 year (completed) |
| Case 2 | Applied service design with young people to imagine how a green area of an ex-psychiatric asylum could foster social inclusion | Brescia, Italy | Formal community | Single service | Youth | Planning, exploration,  co-design | 8 months (completed) |
| Case 3 | Co-designing support for people to live well through and beyond trauma and crisis | West of England, UK | Formal & informal community | Single service | Adult | Planning, exploration,  concept | Seeking funding for co-produced bid |
| Case 4 | Supported a shift toward partnering with people with lived experience of mental health and addictions in the review, design and delivery of services across sectors | Toronto, Canada | Formal & informal community (participation from specialized & general hospitals) | System level | Youth & Adult | Planning, exploration concept &  implementation | 3.5 years (completed) |
| Case 5 | Co-designing an intervention to improve nurse-patient therapeutic engagement on acute mental health wards | London, UK | Dedicated mental hospital | Single service | Adult | Planning & exploration | 3 years (6-months in) |
| Case 6 | Co-designed online support and a new youth intake process for a mental health clinic | Karlstad, Sweden | Formal community | Organisational level | Youth | Planning, concept &  implementation | 2 years (completed) |
| Case 7 | Co-designed a community perinatal mental health service | England & Wales, UK | Community services offered by charities | Single service | Adult (perinatal) | Planning, exploration, co-design & implementation | 1.5 years (implementation ongoing) |
| Case 8 | Developed experience apps and co-designed prototypes to improve coordination of care across settings for youth with mental disorders | Southern Ontario,  Canada | Formal community, primary care & hospital | System level | Youth (Transition stage 16-25) | Planning, exploration & co-design | 3 years (complete) |
| Case 9 | Co-designed prototypes for improved transitions to adult care for youth with mental disorders | Hamilton region,  Ontario, Canada | Services for transitional age youth (primary care, community & hospital) | System level | Youth (16-25) | Planning, exploration, co-design & implementation | 3 years (implementation ongoing) |
| Case 10 | Co-designed prototypes for improved employment support for transitional age youth | Hamilton Ontario, Canada | Employment support services for youth with mental health issues | System | Youth (Transition stage 16-25) | Planning, exploration & co-design | 1 year (complete) |

**Data analysis**

The data collection strategy was to capture each author’s reflection-on-action (Schön, 1983) from their own cases and to use this experiential knowledge to help understand how design strategies could support transformative change in mental health systems. Authors initially used inductive thematic analysis to compare and contrast these reflections-on-action, inductively generating themes that related to the contentious issues experienced in each case. Then, promising design strategies were collated that had been used to address the contentious areas in each case. Each author populated matrices with details from their own cases, which enabled large amounts of data to be easily displayed, compared and interpreted (Miles, Huberman & Saldana, 2014). Through this inductive analysis we developed different overarching themes that captured the contentious issues encountered when doing service design in mental health, which incorporated several sub-themes.

**Theoretical Framework**

To give deeper theoretical insight into the issues that were facing designers within mental health systems, we applied different complexity concepts as a top-down theoretical framework to these inductively generated themes, to explore how specific design strategies helped in the aim of facilitating transformative changes within complex mental health systems. In doing this, we were influenced by the call for health service researchers to recognize the importance of complexity theory as an approach to understanding health systems, creating paradigm shifts that augment traditional research designs to understand how to deal with open systems, and their dynamically changing inter-relationships (Greenhalgh & Papoutsi, 2018). To aid our analysis we used Boehnert’s (2018) visual representation of complexity, that defines different complexity concepts with examples and diagrams. Key complexity concepts and outline definitions that were relevant to our analysis are provided in Table 2, alongside their application to co-design processes.

Table 2 Complexity concepts, definitions (first 13 rows from Boehnert, 2018; 14th row Pawson 2013; 15th-16th row Braithwaite et al., 2018; 17th row Delbridge & Edwards, 2013; 18th row Room, 2013; 19th row Room, 2013, Tenbensel, 2015) and their application to codesign processes

|  |  |  |
| --- | --- | --- |
| Complexity concept | Definition | Application to co-design processes |
| 1. Feedback loops | How do outputs of previous processes enhance and accelerate, or suppress and stop changes in a system? Positive feedback loops that can increase the rate of change, negative feedback loops may prevent or slow change. | How can the codesign process harness positive feedback loops that can increase the rate of change? How can negative feedback loops that may prevent or slow change be avoided? |
| 2. Emergence | New properties that emerge from different elements of a system combining to create more than the sum of their parts. | How does the co-design process enable new ideas, actions and interventions to emerge? How does the co-design process enable new system elements that are more than the sum of their parts? |
| 3. Self-  organisation | Patterns can emerge from interactions between autonomous individuals e.g. how people act together in crowds, or flocking birds. | How do different people work together collectively within co-design to reflect on, coordinate and organise their behaviour? How do co-design processes influence self-organisation? |
| 4. Levers and hubs | These components of a system can have a disproportionate influence, because they are well-connected to other parts of a system and can influence change. | How can co-design processes engage with key champions, leaders, and persons of influence to initiate changes at different system levels? |
| 5. Non-linearity | The effects of inputs are not proportionate to the outcomes achieved. | How can co-design processes lead to multiple different outcomes? |
| 6. Stability | A system can flux between stable states and dynamic change. Policy can influence change in a system to facilitate a new stable state | What new stable states can be envisioned by co-design processes? what actions will enable changes to achieve these new visions? |
| 7. Adaptation | Actors within a system can learn and evolve and change in response to interventions. | How can iterative processes of dialogue, reflection and review ensure that co-design processes are sufficiently adapted to local contexts and circumstances? |
| 8. Path dependency | Current and future states depend on the structures, processes and actions that preceded them within paths through time. | How does the co-design process get influenced by historical trajectories, and how can it go on to to influence and change historically embedded patterns? |
| 9. Tipping points | Critical points where radical changes can occur within a system. Change may begin slowly, but reach a point where dramatic shifts occur. | How can the co-design process work to create tipping points to facilitate system change? |
| 10. Open system | In an open system there are many external interactions that are unpredictable and cannot be controlled for. These could include materials, energy, cultural values and information. | What key factors may be influencing the co-design process that need to be accounted for? |
| 11. Unknowns | There are many factors within a system that people are not aware of that may impact processes and influence change. | Expect the unexpected! |
| 12. Distributed control | No one person has control of a system, and power and influence is unevenly distributed. | How can designers help steer the system toward recovery-based services including flattening hierarchies? |
| 13. Nested system | Complex systems are often nested within wider complex systems that can interact and influence each other. | What wider systems is the co-design process embedded within and how do these influence and interact with each other? |
| 14. Multiple scales and levels | Actions and interactions happen at multiple scales.These can be characterised at an individual, interpersonal, institutional and infrastructural levels (Pawson, 2013). | How is the co-design process and its participants embedded in wider organisational, policy and societal systems, and what effects do these have? |
| 15. Perturbation | Disruptions to a system or an unexpected event that affects normal behaviour patterns or processes, challenging current state of affairs (Braithwaite et al., 2018). | How can designers disrupt the usual way of doing things, and change existing imbalanced power dynamics, to create a stronger feeling of equality between different participants, consistent with a recovery model? |
| 16. Social and relational networks | How do people self-organise into networks, interactions and dependencies between each other? (Braithwaite et al. 2018) | How does co-design affect people’s relationships, communications, and ties? |
| 17. Embedded agency | Social systems set the context for people’s actions. Social structures and cultures can contain multiple logics and pressures that can constrain or enable people’s actions (Delbridge & Edwards, 2013). | How do individuals act within a co-design process where there are multiple logics and pressures? |
| 18. Transformative synergies/ co-evolution | Transformative synergies can develop between different interventions, which enable them to co-evolve together in a wider system. By combining with other interventions this may create a greater force for change (Room 2013). | How can the co-design process contribute to other, ongoing changes within the mental health system e.g. the recovery movement, survivor research? |
| 19. Power distributions and the importance of political process and context | How do distributions of power within the wider political economy of healthcare affect ability to enable social changes (Room, 2013, Tenbensel, 2015)? | How can co-design processes disrupt embedded power relations within a system? How do systems of power affect the ability to instigate social changes from co-design processes? |

Recognizing service design as a way to shift institutional logics and enable organizational change, we analyzed each project in light of the complexity concepts in Table 2. In particular, we sought to understand the factors that have acted as barriers to advancing transformative change. When change did occur, we questioned what role service design approaches played in driving this transformation at various levels in light of theories of change in complex systems. This enabled us to provide different design strategies through which the contentious issues could be addressed.

**Findings**

Five overarching themes were identified that captured the contentious issues encountered when doing service design in mental health: culture clashes; organizational constraints; systems approaches; power dynamics; and ensuring meaningful participation, within which a number of sub-themes emerged. Each of these was then interpreted in light of complexity theory to shed light on how the contentious issue challenged transformative change, and design strategies were put forward in light of these complexity concepts that could help to address them. These are presented below and in Table 3.

**Culture Clashes**

Different paradigms, values, language, assumptions and experiences that have evolved in the various organizations, and structures described above and between health professionals and people with lived experience can all be sources of culture clashes when it comes to adopting a service design approach.

*Social vs. Medical Models*

Recovery reflects a movement away from medical models toward understanding the lived experience of service users within a broader social context. Both recovery and service design consider social factors as being integral to promoting the well-being of the person, in a way that does not preclude, but recognizes more than biological considerations. The pervasiveness of this culture clash can be understood through the complexity concepts of path dependence, nested systems, and multiple scales and levels. Traditional mental health services based on bio-medical models tend to focus on the biological mechanisms of mental ill-health. In contrast, a bio-psycho-social approach, aligns with the recognition that in complex systems (such as health of an individual) no single level can sufficiently explain both causes and effects. Rather, the interactions between levels needs to be understood. Furthermore, the emphasis on person-centredness within service design processes and a recovery approach that recognizes there is no ‘one size fits all’ set of supports, can run into constraints with respect to eligibility criteria and diagnostic categories within mental health organizations. The bio-medical understanding has become path dependent through the evolution of deeply rooted concepts such as clinical guidelines and treatment protocols for particular diagnoses, that make it costly to organizations and health professions to switch to a new path. Service design techniques such as using people’s stories to illuminate inter-connectedness across multiple factors that affect their mental health can help to highlight the need to incorporate the social determinants of health, consistent with a recovery- orientation (Case 4). In addition, design strategies that include greater personalization, and understanding how service interfaces affect clients to support them in their recovery, may be helpful in shedding light on feasible new approaches that can minimize the costs of switching to new paths.

*Experience-based vs. Evidence-Based*

There is also a related concern that service design may meet resistance from proponents of an evidence-based approach, who may see the experiences of a relatively small number of service users and caregivers as anecdotal, rather than evidence-based (Case 4, 5, 7). One design strategy to tackle this issue is to combine both experience (through story and perspective sharing) and more traditional forms of evidence (e.g. reports, articles and theory) to validate direction (4, 5, 7). In addition, techniques such as the person-based approach (Band et al. 2017) that combine user-centred design techniques with an evidence-based approach, may be helpful to integrate different forms of evidence and experience. These integrated techniques can help to disrupt routine ways of thinking, to incorporate wider experience and evidence, consistent with the complexity theory of perturbation.

*Awareness and acceptance of service design*

Compounding these culture clashes in the mental health context, are cultural issues that arise for service design in health systems more broadly. For example, for many mental health services there are different levels of awareness and acceptance of what co-design and co-production mean (Case 1, 4, 5, 7). The complexity concept of adaptation can be helpful in thinking about how change can happen over time, through gradual adaptation. One strategy to assist with acceptance of co-design approaches is to explore values and perceptions of participants about service design and recovery to identify where there may be convergence or conflict (Case 1, 5, 7). Another strategy is to hold open stakeholder discussions to ensure a common understanding of the process from the outset and to identify areas where conflicting values or priorities can co-exist (Case 1, 5, 7).

Table 3. Contentious issues, complexity concepts and design strategies in the cases

|  |  |  |
| --- | --- | --- |
| **Contentious Issues** | **Complexity Concepts** | **Design Strategies** |
| ***Overarching Theme 1: Culture Clashes*** | | |
| SOCIAL VS. MEDICAL MODELS\* - Moving away from medical models, to understand the lived experience of service users and explore lived experience so that breakdowns can become breakthroughs (Case 3, 4, 5, 6). Also tension between recovery as an extremely personal, subjective and nonlinear experience and the rigidity of and misalignment across some services provision (Case 1, 3, 4) | Path dependency  Recognize the embeddedness of the medical model in systems and thinking as part of the culture in health systems  Nested systems  Identify the many systems in which participants are operating and note the culture of each.  Multiple levels  Be aware that culture change may need to occur at multiple levels (individual, organizational, societal) | Use improvisation/role-play rehearsal to explore alternative responses to situations that appreciate lived experience and receive feedback (4)  Using people’s stories to illuminate inter-connectedness and need for incorporation of social determinants of health (4)  Consider personalization (e.g. decreasing support) of care provision when designing for new/improved services and interfaces to favour service adjustments along the recovery journey (1) |
| EXPERIENCE-BASED VS. EVIDENCE-BASED - Tension between the principles of the co-design approach and the traditional ‘evidence-based’ approach (Case 4, 5, 7) | Perturbation  Adopting a service design approach can act as a disruptive force that can perturb the traditional culture of scientific evidence as the necessary driver of reform. | Combining both experience (through story and perspective sharing) and more traditional forms of evidence (e.g. reports, articles and theory) to validate direction (4, 5, 7)  Draw on existing co-design literature and other project examples to communicate  value and validity of approach (7) |
| AWARENESS & ACCEPTANCE OF SERVICE DESIGN - Different levels of awareness of what co-design & co-production mean and different levels of acceptance across mental healthcare services (Case 1, 4, 5, 7) | Adaptation  In complex systems, the rules of the game can change as they are being played. Service design approaches can encourage gradual adaptation of cultural change into different organizations | Conduct exploratory and preliminary research into existing values and perceptions around co-design production and recovery to consider possible convergence or areas where conflicting values can co-exist and allow for experimentation (1, 5, 7)  Ensure common understanding from outset as to the approach being taken and the value of it (7) |
| ***Overarching Theme 2: Organisational Constraints*** | | |
| STRUCTURAL CONSTRAINTS - Physical (e.g. space design), organisational (e.g. roles and work model) or legal constraints (e.g. payment system) that limit/constrain the application of co-production and recovery- oriented solutions (Case 1, 3, 4, 6) | Feedback Loops  Recognize built in mechanisms that hamper change in complex systems.  Path Dependency  Understand the costs of switching to new paths that tend to reinforce existing ways of operating. | Acknowledge constraints and work at the edges to experiment and demonstrate value that can lead to better funding or opportunities for larger scale change (1, 3) |
| PRIORITZING CRISIS VS. PREVENTION\* - Issues supporting self-management outside of existing services because of mandates of the organizations supporting co-design process (Case 6) | ADAPTATION – Organizations need to adapt to new ways of doing business and slowly shift deeply embedded ideas that prioritize responding to people in crisis rather than preventing illness in the first place. | Building self-management into organizational redesign and new mandate (6) |
| MANAGING RISK, TIME AND RESOURCE CONSTRAINTS - Tension between focusing service provider time on existing services and seeing service users or investing time in the development of new services (Case 4, 5, 6) or building service design capacity for the long term (Case 5, 6) | FEEDBACK LOOPS – Current feedback loops prioritize throughput of patients and shortening wait times.  EMERGENCE – Little recognition at present that investing in service design capacity may be a short term cost but that can have benefits that spill over into multiple areas that can benefit from such approaches. This could lead to value add that is greater than any one project investment, by changing how staff approach multiple organizational challenges. | Getting buy-in from organizational leadership to dedicate percentage of staff time to service design process (5, 6)  Ensuring early buy-in from service user groups, to advocate and support co-design work within the service (5) |
| ***Overarching Theme 3: Systems Approaches*** | | |
| WORKING ACROSS SYSTEMS AND THEIR DIFFERENT LEVELS\* - Separate governance and funding barriers can hamper implementation of cross-sectoral co-design ideas to improve service coordination (Case 1, 2, 4, 8, 9). There are different interacting issues and levels within an ecosystem, ranging from individual to societal levels. It can be and difficult to know where to begin and work (Case 1, 4, 5, 8 ,9) | Transformative synergies/ co-evolution  Bringing together representatives of different organizations within the system through service design can suggest improvements in each that can foster synergistic transformation as they co-evolve toward a recovery orientation.  Embedded/Nested Systems  Recognize the agents that are working at multiple levels toward the same aim and ensure that efforts at different levels are mutually supportive. | Conduct a system mapping exercise to ensure a wide range of organizations and sectoral representation (8, 9)  User recovery journey maps as support to identify gaps and misalignment across services to identify opportunities to design in the ‘holes’ to better bridge existing provision and look for bridging and orienting solutions and roles to guarantee continuity of care (1)  Create a governance structure that forms an eco-system that works together motivated by a common desire to improve service user experiences of service coordination and integration of services. (8, 9)  Secure support of higher authorities that span  multiple services. (8, 9)  Support community to advocate for government policy change through different avenues, including policy reports (4) |
| NEED FOR SOCIETAL CHANGE\* - Societal change and culture change needed when supporting people toward full recovery | Tipping points  Although change may begin gradually it can reach a critical points where radical changes occur  Path Dependency  Recognize how historical legacies have shaped perceptions and structures that reinforce stigma | Mapping the underlying social structures and mental models contributing to the current system (4)  Favour hybrid spaces and initiatives, outside traditional service locations, that work toward social inclusion and societal change (2, 3) |
| ***Overarching Theme 4: Power Dynamics*** | | |
| PEER VS. SERVICE PROVIDER DIVIDE Conflict between creating a “peer” label to create positions for people with lived experience, but inadvertently creating a false divide between peers and other service providers (Case 4) Service providers may also be defensive of their own expertise and knowledge when enhancing the role of mental health service users in co-design and co-production (Case 3, 4, 5, 6, 8, 9, 10) | Social and relational networks, Emergence and Self Organization  Service design recognizes the social relationships and networks of participants and can foster new relationships through the design process. This in turn can lead to the emergence of new relationships as participants bring lessons learned back to their networks fostering change through self organization  Distributed control - Power is distributed among many individuals and groups who may resist change. Challenging their power requires an overall cultural change within the system  Path dependency - This reinforces the traditional medical hierarchy, which is embedded in the culture and context of the current system. | Using the ladder of engagement to reflect on and challenge the current role of peers in the service or system (4)  Support inclusion of all voices by skilled facilitation that recognizes core values of each group (5, 8, 9, 10)  Place lived experience of service users at the centre of deliberations to counterbalance structural power of professionals (8, 9, 10)  Build capacity of vulnerable participants over time (8, 9, 10)  Facilitators must take the time to listen fully and not put process and timelines ahead of participants (7, 8, 9, 10)  Design tools for service providers to better take and receive feedback (4) |
| PEOPLE AND THEIR FAMILIES Tensions between needs of people with lived experience and their families (Case 4, 5, 9) | Social and relational networks Recognize the constraints upon different participants because of their relational networks and systems in which they are embedded can assist with balancing power  Embedded systems | Begin with separate groups for each stakeholder type to empower each group before bringing together for joint discussion (4, 5)  Valuing everyone’s time and existing commitments of diverse perspectives (Cases 5,8,9,10)  Adopting a flexible approach to engagement. For example, if an event time cannot work for everyone, offer multiple events to encourage participation over the process rather than each event. (4,5). |
| INTERSECTIONALITY (PD) Tension related to a focus on addressing inequity for people lived experience vs. other forms of power and oppression within the system e.g. race, sexual orientation, immigration, physical disability, etc. | Power relations  All components of a system exist in relation to others and some have disproportionate influence because of their connections | Developing tools and strategies to support reflection on different sources of power in organizations (4)  Providing training for project leadership and all project stakeholders in anti-oppressive practice and anti-racism (4) |
| TOP DOWN VS. BOTTOM UP APPROACH Ensuring a bottom up approach as opposed to a top down approach | Embedded/nested systems  Complex systems can be embedded within other complex systems each of which may be mechanisms of change at different levels. It is important that service design not undermine change efforts underway at different levels of nested systems. | Starting project with no pre-defined goals and ensuring every decision is taken based on co-design activity, rather than top-down drivers (7)  Creating regular spaces for people from across sectors and levels with diverse background to meet and collaborate with ongoing attention to power dynamics (4) |
| CONTROL AND RESPONSIBILITY Challenges related to ownership and control of the process staying with the design team vs. partners and those who have resources | Distributed Control  Emergence  Service design can assist in shifting the already distributed control by allowing an new power balance between people with lived experience and service providers to emerge. | Building ownership through ongoing capacity building with service providers and service users throughout the process (2, 3, 6) |
| ***Overarching Theme 5: Ensuring Meaningful Participation*** | | |
| PARTICIPANT CAPACITY & MOTIVATION (MP) Different participants’ abilities and motivations to participate and continue to engage with co-design and co-production over time. | Embedded agency  Constraints exist that make it difficult for change to occur even when participants are open to change. These can include the time that participants can devote to the process, threats to power relations, health and social circumstances. | Intentionally reach out to marginalized people through alternative community platforms rather than recruiting just through existing services (3, 4, 7)  Allow for different roles and levels of participation and identify trusted “intermediaries” that can mediate and evaluate feasibility of engagement (1, 2)  Identifying some short-term tasks and simple activities which can work as entry points is crucial to guarantee people engagement in all the process phases (2)  Offer roles and opportunities for participants to grow, learn and lead throughout the process (4, 6, 7)  Continued engagement of vulnerable groups requires strategically aligning with their varying motivations for involvement and designing processes and that meet those varying needs with extra support as required. (7, 8, 9)  Offer ongoing means to participate, as well as one- off sessions that go to spaces where people are already gathering (4, 5)  Consider working with an established service user group to ensure ongoing peer support for participants e.g. ResearchNet model (Springham, Wraight, Prendergast, Kaur & Hughes, 2011) (5)  Including co-design participants’ contributions in subsequent meetings and workshops to help communicate where their contribution is having an impact (2, 7)  Importance of "intermediaries" (e.g. psychologists) to monitor the ongoing condition of participants and their needs to re-arrange the design intervention in real time (2) |
| AUTHENTIC VS. TOKENISTIC ENGAGEMENT (MP) Overcoming scepticism that engagement is tokenistic | Embedded Agency  Recognize that intentions for reform can be impeded by constraints within systems | Being clear to participants from the beginning that transformative change takes time and that there may not be immediate uptake of co-design outputs (3, 5, 6, 8, 9, 10)  Where possible, securing support of managers and system leaders in advance to act upon produced outcomes and improvement ideas (5, 8, 9, 10) |
| PAY & COMPENSATION (MP) | Stability  Making explicit that compensation is required for involving people with lived experience in service design can foster new power relations consistent with ongoing engagement | Provide stipends to compensate for the time of people with lived experience, for example, following INVOLVE guidelines (INVOLVE 2018) that set out fair payment for study participants (3, 4, 5) |

**Organisational Constraints**

A number of structural and management constraints were identified arising at the organisational and public policy levels that influence what is possible in service design processes.

*Structural constraints*

Organisational constraints can set the context and parameters for what is possible within a service design process. More specifically, our cases highlighted physical space, organisational roles, existing workflows, as well as system level legal constraints, economic incentives and funding to dictate what is possible. Both the ideas and the structural constraints that evolved can be understood within the complexity concept of path dependence and the related concepts of feedback loops, both of which are self-reinforcing.

*Prioritizing crisis vs. prevention*

The traditional focus of many mental health services is on managing acute mental health crises, consistent with the bio-medical approach. Therefore, it can be difficult for organizations to place priority on service design processes that may focus on improving self-management outside of clinical settings (Case 6). Complexity theory points to the process of adaptation as a helpful way to think about strategies to advance solutions. This recognizes that solutions must adapt to local contexts and conditions. Design strategies to facilitate adaptation could include building self-management into organizational redesign and mandates that emphasize the need to go beyond crisis management to support ongoing recovery.

*Managing risk, time and resource constraints*

Other organizational constraints to the service design process may also exist. For example, managers in healthcare organisations may be fearful of risks to the individuals involved in service design processes, and may be reluctant to devote time to service design rather than direct care delivery. Similarly, managers may also be reluctant to invest in staff service design training despite the associated long-term payoff, prioritizing treatment approaches because of a pressing need for new services. More generally, it can be difficult to secure management support to implement service design outcomes, when these are not known in advance. Competing priorities, organisational tensions, professional boundaries, and the rigidity of service provision can all be difficult dynamics to manage.

Complexity theory suggests that this reluctance to engage in service design is reinforced by feedback loops such as funding arrangements and top-down directives that prioritize throughput of patients and shortening wait times, rather than providing incentives for quality improvement. Design strategies that could challenge these existing feedback loops could include ensuring early buy-in from organisational leadership, and/or service user groups that will advocate and support service design work and enable a percentage of staff time be dedicated to the service design process (Case 5, 6). The complexity concept of emergence may also be helpful in fostering a gradual recognition of the benefit from service design approaches that in themselves may contribute to recovery-oriented services, with the result that service users are better able to manage symptoms and reduce demand for treatment over time. As recognition of these benefits emerge through multiple service design projects, a tipping point may be reached through which an overall paradigm shift may occur within and across organizations.

**Systems Approaches**

The requirement to address people’s multiple needs within a recovery orientation often implies that service design not only occurs within a single service, but across multiple services within and outside the health services. This is particularly true in the mental health context, where multiple systems including health, social services, education, justice, etc. may be involved for a given person, which each have separate governance and funding structures.

*Working Across Systems and their Different Levels*

The need to work across multiple systems and their associated structures can impede coordination in service design processes and can hamper implementation of cross-sectoral co-design ideas to improve service coordination (Case 1, 2, 4, 8, 9). Furthermore, complex adaptive systems are often embedded within broader systems. As a rule, operationalizing service design in a systems approach requires recognition of the multiple and interacting issues and levels within the system that will influence service design outcomes for people with mental health concerns. For the practitioner, it can be very difficult to know where to focus attention and where to begin the process of service design in this context.

The complexity concepts of transformative strategies/co-evolution of nested systems can be helpful here. While working across systems and levels presents challenges, it can also present opportunities according to complexity theory, as transformative synergies may exist, wherein interventions can co-evolve simultaneously across multiple systems. From a design perspective, it may be helpful to conduct a system-mapping exercise to ensure a wide range of organizations and sectoral representation (Case 8, 9), so that any interventions being designed can be simultaneously implemented or supported across organizations and systems. User recovery journey maps can also help to identify gaps and misalignment across services and point to opportunities to design in the ‘holes’ to better bridge existing provision, and identify solutions to guarantee continuity of care (Case 1). It can also be helpful to create a project governance structure that forms an eco-system of organizations and individuals (e.g. governments at various levels, health professional organizations, granting agencies, consumer-survivor organizations), which is motivated by a common desire to improve service users’ experiences of service coordination and integration, and to secure the support of higher authorities that span multiple services (Case 8, 9). Keeping advocacy organizations, particularly the consumer survivor and peer movements, apprised of emerging findings can also help to pressure decision-makers at different levels to move ideas generated into practice. Co-design activities themselves can facilitate encounters between stakeholder groups and reflexivity through which they may identify hidden resources in a cross-sectoral context, and to experiment and demonstrate value that can lead to better funding or opportunities for larger scale change.

*Need for Societal Change*

Complicating things further, is the fact that recovery-oriented change within these services and systems can only be effective within the context of broader societal change to support people with mental health concerns as valued members of society. This requires, for example, shifting perceptions of people with mental health concerns to overcome stigma and promote social inclusion. Complexity theory points to path dependency, wherein stigma toward people with mental health concerns developed in part from historical approaches such as treatment of people in institutional settings away from the community that created social distance. These dependencies continue to be reflected today in separation between mental health and the rest of the healthcare system in many jurisdictions (Mulvale et al. 2007). There is a need to understand and recognize the need for a ‘tipping point’ or ‘policy window’ wherein what has been a gradual change can lead to a sudden shift in perception toward social inclusion. Strategies that designers can use to contribute to such change include: mapping the underlying social structures and mental models that contribute to the current system to understand constraints and opportunities (Case 4); and choosing to work in hybrid spaces and initiatives that operate outside traditional service locations to foster social inclusion and societal change (Case 2, 3).

**Power Dynamics**

We also found that service design processes in mental health ran into issues of power dynamics that manifested in myriad ways across the various cases.

*Peer vs. Service Provider Divide*

Service design projects are often hosted by institutions that are built on various power structures such as expertise, bureaucracy, financial resources, and discourses that construct power inequalities. For example, service providers may have deeply entrenched hierarchies within health contexts, such as hospital settings, that can create defensiveness of their own expertise and knowledge when efforts to move toward a recovery orientation enhance the role of mental health service users in co-design (Case 3, 4, 5, 6, 7, 8, 9, 10). For example, those at the top of the traditional medical hierarchy have professional autonomy in making many medical decisions. Hierarchy issues may be particularly acute in service design projects involving people with lived experience as peer supports, creating a false divide between peers and professional providers (Case 4).

These issues of power dynamics align with the complexity concept of distributed control, which recognizes that there are many players who have their own power within complex systems. A recovery orientation where service users have greater input into decision-making could be seen as shifting the balance of power in the current distributed power structure away from professionals and toward service users. Complexity theory also recognizes the importance of the networks, interactions and dependencies between people, and how these interactions can lead to changes in relations between groups at a higher level (self-organization) as well in ideas and structures, through the process of emergence (Boehnert, 2018). By giving service users and families an equal voice in service design activities, traditional hierarchies that may be subtly present during multi-stakeholder design sessions are challenged. The dynamics of these interactions within the co-design space leads to changes in power relations and interactions among project participants, that can further lead to the emergence of new relations and structures within organizations and systems. Facilitators can assist this process by allowing participants the time to fully work through their differences constructively, rather than defaulting to solutions proposed by more powerful participants and to call out conflicts and power dynamics that may arise during collaborative activities (Case 7, 8, 9, 10). It may also be beneficial if the facilitator is a person with lived experience. Another strategy was to use the ladder of engagement to reflect on and challenge the current role of peers in the service or system (Case 4).

*People and Their Families*

There are also power dynamics that can arise between people with lived experience and their families, where there can be disagreements over who knows what is best for the person. This reflects complexity theories pertaining to existing social and relational networks and the nested systems within which these occur that confer power differently. In several cases, the influence of power imbalances came to light when it came to the pragmatic issue of when to hold a design session so that all could attend in light of differing life circumstances. In two cases, service providers refused to attend on weekends, while family members resented losing time from paid employment to attend (Case 4, 5). In such situations, the group that compromises may feel disempowered and that their needs are not being respected. Helping each group to recognize the constraints imposed by the social and relational networks that each participant group operates within can be important, and can help to separate the pragmatic realities from the power concerns. Where these issues have the potential to derail constructive discussion, one approach is to initially host separate groups to empower members of each group individually to hear their stories, followed by combined (mixed) group activities for constructive co-design (Case 4, 5).

*Intersectionality*

Power dynamics also played out through clashes over whose needs to prioritize in two cases when it came to focusing on people with mental health concerns as a group, without giving due consideration to other forms of power and oppression within health systems, such as with respect to race, sexual orientation, immigration, and physical disability among others (Case 4, 9). Here the complexity concept of power relations can be helpful, which recognizes that all components of a system exist in relation to others and some have disproportionate influence because of their connections. Developing tools and strategies to support reflection on different sources of power in organizations, and providing training for project leadership and all project stakeholders in anti-oppressive practice and anti-racism were suggested (Case 4).

*Top Down vs. Bottom Up Approach*

Power challenges can arise when change is motivated by a grassroots pressure rather than a top-down directive (Case 4, 5, 7). There are questions of who does and who should hold the power in each process if the goal is disruptive change. Here the complexity concept of embedded nested systems comes into play. This suggests that complex systems can be embedded within other complex systems, each of which may be mechanisms of change at different levels. It is important for service designers to be aware of these mechanisms and not undermine efforts occurring at different levels. One example where this arose, was a case where designers were working with mainstream organizations to increase peer involvement, but needed to do so without undermining the work of advocates within the consumer survivor movement, who placed greater emphasis on moving away from mainstream organizations (Case 4). Suggested strategies were to start the process with no pre-defined goals or top-down drivers, and to create regular spaces for people to meet and collaborate across sectors with ongoing attention to power dynamics.

*Control and Responsibility*

Another issue that arose pertaining to power, was how to transfer ownership and control of the process away from the design team toward participants and stakeholders within the broader system. This is particularly important in the mental health context where the complexity concepts of distributed control and emergence can be key mechanisms of change. Rather than waiting until the end of the design activities, a suggested strategy is to foster critical reflective practice within organizations and build ownership and capacity among service users and providers throughout the design process (Case 2, 3, 6).

**Ensuring Meaningful Participation**

The above power dynamics can make it difficult to ensure meaningful participation in service design in the mental health context. Authors of all cases pointed to the need to consider the capacities of different participants, and their motivations for wanting to be involved in service design activities.

*Participant Capacity and Motivation*

For example, people with mental health concerns may be motivated by the need to be heard, to hear about experiences of others, or because they feel that sharing their own experiences may improve services for others. However, for some, symptoms or health status may influence their ability to be involved or to stay involved. While staff may support greater involvement of people with mental health concerns in the design and delivery of mental health services in principle, they may be less supportive of service design processes because they may anticipate criticism, or question the capacity of individuals who they have seen struggle with acute symptoms to contribute constructively. Diverse motivations for involvement can also hamper continued engagement through the various co-design stages during a lengthy project. Consideration must also be given to how being involved in a service design process may influence participants themselves. Asking participants to share their lived experience could trigger individuals who are at varying stages of wellness.

The complexity concept of embedded agency is important when it comes to engaging and continuing engagement of people with lived experience, families and service providers in service design and in ensuring their engagement is authentic, rather than tokenistic. Embedded agency recognizes that even when there is initial motivation for change, people’s actions are embedded within wider social systems that can constrain and/or enable their actions (Delbridge & Edwards, 2013). A recommended strategy is for design practitioners to develop an understanding of different participant motivations to help support continued participation (Case 4, 6, 7). It is also important to ensure supports (professional and peer support) are available to anyone who might experience a setback. A recommended strategy is for design practitioners to develop an understanding of different participant motivations to help support continued participation (Case 4, 6, 7). It is also important to ensure supports (professional and peer support) are available to anyone who might experience a setback. To assist with engaging marginalized people, it is important to reach out through community platforms, rather than strictly through existing services in some cases (Case 3, 4, 7). In other cases, trusted intermediaries such as a psychologist or established service user group were important to assist with engagement (Case 1, 2, 5). Other strategies were to identify some simple activities and tasks that could act as entry points to engagement (Case 2) and to over-recruit the most vulnerable groups and support participants with transportation to facilitate attendance (Case 2).

*Authentic vs. Tokenistic Engagement*

Many people may be sceptical that their input will actually make a difference and fear their engagement may be tokenistic rather than authentic. There is a tension that arises between creating enthusiasm for the work, which will motivate engagement, versus raising expectations of service change that may not be realized. It is critical to be clear to participants from the beginning that transformative change may take a long time to achieve, so as to avoid setting false expectations (Case 3, 5, 6, 8, 9, 10). It is also recommended that wherever possible, support of managers and leaders be secured in advance to act on related service design concepts (Case 5, 8, 9, 10).

*Pay and Compensation*

All the above challenges in the mental health context are compounded by more ubiquitous issues with regard to how to pay or compensate people involved in service design work, given that different professionals are compensated in different ways and at different rates, and there is a need to ensure compensation for people with lived experience and caregivers. In a realm where there traditionally has been no clear precedent, with service practitioners and researchers often setting compensation based on available project funding or requirements of different ethics review boards, the complexity concept of stability is important. This suggests that complex systems have multiple stable states and that moving from one to another can be a source of change that then becomes a new steady state. Aligning with this, one suggested strategy was to establish clear compensation guidelines that becomea new steady state that is consistent with a recovery orientation (Case 3, 4, 5). These can be based on more formal existing guidelines (e.g. INVOLVE, 2018).

**Discussion**

Taken together, our examination of the ten cases suggests that a design approach can be helpful to foster transformative change toward a recovery-orientation in mental health services. Complexity theory can be very helpful in understanding some of the contention faced when using a service design approach, and can help to identify specific design strategies that may assist in overcoming these contentious issues.

Many of the contentious issues we identified relate to contextual factors within complex adaptive systems. In particular, organizational constraints and systems approaches reflect culture clashes that relate to path dependence, multiple levels and distributed control. Contentious issues that relate to how participants can meaningfully participate in co-design processes, and the power dynamics within these processes, were related to complexity concepts such as embedded agency, social and relational networks, power distributions, and nested systems.

Culture clashes and power dynamics were cross-cutting themes that permeated all of the contentious issues. Power dynamics can be expected to emerge in any healthcare service design context, whenever providers, patients and family members are together, given traditional roles of the various participants in clinical encounters and in their social networks and roles, as well as power differential arising from age, illness, etc. Power differentials may be particularly significant within mental health systems because of stigma. Mental health stigma influences people with lived experience, their families and even mental health service providers and can accentuate differences in power across these various groups. Stigma represents a negative feedback loop that operates at multiple scales, by inhibiting service design efforts to move toward a recovery orientation, and instead reinforces disempowerment of people with mental health concerns and their families compared with others in society, mental health providers relative to other providers in the system, mental health policy versus other policy domains, and mental health versus other health funding.

The process of service design may be particularly important in this context as a catalyst for transformative change by interrupting stigma and associated power dynamics that can allow for deeply embedded culture clashes to lessen. In particular, service design approaches have been recognized as an important tool to foster reflexivity, which is a critical element in fostering transformative change (Archer, 2003, 2007). Through social interactions and reflexivity, people have the potential to instigate changes within themselves or others, or instigate cultural or structural changes (Archer 2003, 2007). Service design and co-design approaches are deliberately constructed to create a safe environment for social interactions that encourage the collective reflexivity that is a precursor to transformative change. In practice, this is witnessed by a shift in power dynamics during co-design, consistent with a recovery-orientation. This occurs as: (i) providers come to value the inputs of patients and families; (ii) families begin to understand the core values of and constraints on providers; and (iii) as patients bear witness to their experiences and are heard in a way that values those experiences and uses them to drive change. Through the service design process, collective reflexivity creates a positive feedback loop that further empowers all participants to become change agents, shifting their world views and helping to change deeply embedded culture clashes that traditionally suppress change and entrench power inequalities.

Key roles of the design team to facilitate these changes in power dynamics include: engendering trust; overcoming stigma; building rapport; ensuring the right people are in the room; and that the entire process is enveloped by a supportive management structure or steering committee. If designers can engage key leaders to share learning from co-design throughout the system, they may be able to act as ‘a lever and hub’, which complexity theory suggests can help to promote change across mental health systems. The result of these ongoing efforts can be transformative change through complexity concepts of emergence, adaptation and self-organization.

The reality of how this change plays out also reflects complexity concepts of the unknown and non-linearity. Designers often have an acute feeling of ‘Will this work?’, wherein the outcomes and whether they will be implemented are unknown in advance. In service design processes, managers also have to buy into a process where the solutions are unknown, so trust in the process and the design team is paramount and speaks to the essential need for rigour. In complex systems, spanning multiple services, it is not always clear where change will happen, and when policy windows will open up. This may require adaptation of grass roots ideas, as well as emergence and convergence among multiple organizations that leads to a tipping point, to create a policy window for more widespread adoption.

**Implications for Healthcare Delivery**

The findings suggest that service design approaches can foster dialogue to deliver recovery-oriented services that better meet the individualized needs of people with mental illness. In presenting these design strategies, this paper calls on the service design and mental health communities to consider their responsibilities to those with lived experience at each stage of the project as well as in service delivery; not only to provide a positive, meaningful experience to shape their future care, but to also mitigate against the potential negative impacts of participation by building in specific, expert support.

**Implications for Health Policy**

The strategies presented can also help to overcome contentious issues when designing in the mental health context that may otherwise impede mental health system transformation toward recovery-oriented policy and planning. The effective and genuine participation of all stakeholders involved is key to creating the most effective outcomes for all parties. Senior stakeholder buy-in often holds the key to unlocking the staff input, resources and commitment to deliver a successful project. However, in a sector with strong, active user groups, the buy-in from service users is of equal importance. Those leading service design efforts must be mindful that they do not unduly reinforce divides, inequalities or power dynamics that exist between stakeholder groups, services or systems. Instead, the aim should be to challenge some of the existing dynamics, encourage the formation of new relationships, and push the mandates of organisations to better accommodate the needs of people with mental health concerns. Keeping control in decision-making processes can be unconscious, ingrained, and embedded within hierarchies (Dimopoulos-Bick, Dawda, Maher, Verma & Palmer, 2018), thus critical reflective practice and dialogue is essential (Farr, 2018).

**Implications for Future Research**

Fostering greater interdisciplinarity in research to advance mental health policy presents new strategies to address long-standing challenges. The contentious issues and design strategies presented in this paper reflect the collective experience of the authors from a range of disciplines in the emerging area of mental health service design from ten cases across four countries. In doing so, this work is the first to explore how complexity theory can help us to identify design strategies that may help to create transformative changes within mental health systems. The issues and strategies identified are a basis for an international research program in mental health policy and design. However, the cases analysed were at various stages, with different populations and in specific contexts which limits comparability and generalizability. More research is needed to understand these issues and related strategies in other, especially not Western, contexts. In addition, further investigation is needed into how to make this knowledge and these strategies available, where relevant, for various mental health communities to support transformation and spread service design approaches beyond the design community.

**Conclusions**

Our design strategies illustrate the need to understand the complexity inherent in trying to facilitate transformative change within mental health systems. A systemic perspective is essential for mental healthcare transformation that goes beyond traditional service providers, to leverage local resources, engage society, favour social inclusion and support dialogue with policy makers and funders. Design strategies for mental health transformation include taking a situated, reflexive, context-sensitive and holistic approach, which may require upskilling and the translation of suggested design strategies into tested practices, methods and tools that can be widely applied. Service designers and researchers need to take a more systemic account of situations and evaluate their design interventions, so that these strategies can be consciously developed and lessons learned shared between communities. While we see the area of designing for mental healthcare transformation as one of great potential for positive societal impact, there is a need to build awareness of the complex challenges that there are in facilitating changes in practice, and supporting the ongoing development of design strategies to deal with complex dynamics in mental health systems.

**References**

Amering, M., Mikus M., & Steffen, S. (2012). Recovery in Austria: mental health trialogue. *International Review of Psychiatry*, 24, 11–8.

Anderson, S., Nasr, L., & Rayburn, S. W. (2018). Transformative service research and service design: synergistic effects in healthcare. *The Service Industries Journal*, 38(1-2), 99-113.

Anthony, W. (1993). Recovery from mental illness: the guiding vision of the mental health service system in the 1990s. *Psychosocial Rehabilitation Journal*, 16, 11–23.

Archer, M.S. (2003). Structure, agency and the internal conversation. Cambridge: Cambridge University Press.

Archer, M.S. (2007). Making our way through the world. Cambridge: Cambridge University Press.

Archer, M.S. (2013). Collective Reflexivity: A Relational Case for It. In: Powell C, Dépelteau F (Eds.) *Conceptualising Relational Sociology* (pp. 145-161). New York: Palgrave Macmillan.

Arico M. (2018) Service Design as a Transformation Force: Introduction and Adoption in an Organisational Context (Doctoral dissertation). Retrieved from <https://www.researchgate.net/publication/329100695_Service_Design_as_a_Transformative_Force_Introduction_and_Adoption_in_an_Organizational_Context> on February 20 2019.

Band, R., Bradbury, K., Morton, K., May, C., Michie, S., Mair, F. S., Murray, E., McManus, R.J., Little, P. & Yardley, L. (2017). Intervention planning for a digital intervention for self-management of hypertension: a theory-evidence and person-based approach. *Implementation Science*, 12(1), 25. doi:10.1186/s13012-017-0553-4.

Bate, P., & Robert, G. (2007). *Bringing user experience to healthcare improvement: The concepts, methods and practices of experience-based design*. Abingdon: Radcliffe.

Boehnert, J. (2018). *The Visual Representation of Complexity: Definitions, Examples and Learning Points’. Centre for the Evaluation of Complexity Across the Nexus*. Accessed from:

<https://www.cecan.ac.uk/sites/default/files/2018-06/The%20Visual%20Communication%20of%20Complexity%20-%20May2018%20-%20EcoLabs.pdf> on February 19 2019.

Braithwaite, J., Churruca, K., Long, J. C., Ellis, L. A., & Herkes, J. (2018). When complexity science meets implementation science: a theoretical and empirical analysis of systems change. *BMC Medicine,* 16(1), 63. doi:10.1186/s12916-018-1057-z

Carrera, M., Sangiorgi, D., Foglieni, F., Segato, F., & Lucchi, F. (2018). Developing recovery oriented services and co-production in mental healthcare: Building- up on existing promising organisational practices. In A. Meroni, A. M. Ospina Medina, & B. Villari (Eds.), *Conference Proceedings ServDes2018 - Service Design Proof of Concept* (pp. 414-426). Linköping: Linköping University Electronic Press.

Chamberlain, J. (1990). The ex‐patients movement: where have we been and where are we going? *The Journal of Mind and Behaviour*, 111, 323–336.

Davison, L., Mezzina, R., & Rowe M. (2010). A life in the community: Italian mental health reform and recovery. *Journal of Mental Health* 15(5), 436-443.

Delbridge, R., & Edwards, T. (2013). Inhabiting Institutions: Critical Realist Refinements to Understanding Institutional Complexity and Change. *Organization Studies*, 34(7), 927-947. doi:10.1177/0170840613483805

Dimopoulos-Bick, T., Dawda, P., Maher, L., Verma, R., & Palmer, V. (2018). Experience-Based Co-Design: Tackling common challenges. *The Journal of Health Design*, 3(1), 86–93.

Donati, P. (2011). Modernization and relational reflexivity. *International Review of Sociology*, 21(1), 21-39.

Donati, P. & Archer, M.S. (2015). *The relational subject*. Cambridge: Cambridge University Press.

Donetto, S., Tsianakas, V., & Robert, G. (2014). *Using Experience-based Co-design (EBCD) to improve the quality of healthcare: mapping where we are now and establishing future directions*. London: King's College London.

Farr, M. (2018). Power dynamics and collaborative mechanisms in co-production and co-design processes. *Critical Social Policy*, 38(4), 623-644.

Freire, K., & Sangiorgi, D. (2010). Service design and healthcare innovation: from consumption to co-production to co-creation. In S. Holmlid, J.-V. Nisula, & S. Clatworthy (Eds.), *Conference Proceedings ServDes. 2010: Exchanging Knowledge* (pp. 414-426). Linköping: Linköping University Press.

Greenhalgh, T. & Papoutsi, C. (2018). Studying complexity in health services research: desperately seeking an overdue paradigm shift. *BMC Medicine,* 16(1), 95. doi:10.1186/s12916-018-1089-4.

Iedema, R., Merrick, E., Piper, D., Britton, K., Gray, J., Verma, R., & Manning, N. (2010). Codesigning as a Discursive Practice in Emergency Health Services: The Architecture of Deliberation. *Journal of Applied Behavioral Science*, 46(1), 73-91.

Iedema, R. (2011). Creating safety by strengthening clinicians’ capacity for reflexivity. *Quality and Safety in Health Care*. 20 (Supplement 1): i83-i86.

INVOLVE (2018). Payment for involvement work. Retrieved November 22, 2018, from<http://www.invo.org.uk/?s=payments>.

Jacob, K.S. (2015). Recovery model of mental illness: A complementary approach to psychiatric care. *Indian journal of psychological medicine*, 37(2), 117.

Jones, P.H. (2013a). Systemic Design Principles for Complex Social Systems. In: Gary S., & Metcalf (Eds.) *Social Systems and Design Vol. 1*,  
(pp. 91-128). Tokyo, Japan: Springer.

Jones, P. (2013b). Designing for Care. Rosenfeld. (locations 251, 5735) (Kindle Book).

Malmberg, L., Rodrigues, V., Lännerström, L., Wetter-Edman, K., Vink, J., Holmlid, S. (2019). Service design as a transformational driver towards person-centered care in healthcare. In M. A. Pfannstiel & C.Rasche (Eds.), *Service Design and Service Thinking in Healthcare and Hospital Management; Theory, Concepts and Practice*, (pp. 1-18). Cham: Springer International Publishing AG.

Meroni, A., & Sangiorgi, D. (2011). *Design for Services*, Farnham: Grower.

Miles M., Huberman, M., & Saldana, J. (2014). *Qualitative Data Analysis: A Methods Source Book*. London: Sage.

Mulvale, A., Miatello, A., Hackett, C., & Mulvale, G. (2016). Applying experience-based co-design with vulnerable populations: Lessons from a systematic review of methods to involve patients, families and service providers in child and youth mental health service improvement. *Patient Experience Journal*, 3(1), 117-129.

Mulvale, G., Abelson, J., and Goering, P. (2007). Mental Health Service Delivery in Ontario Canada: How do Policy Legacies Shape Prospects for Reform? *Health Economics, Policy and Law*, 2(4), 363–389.

Nakarada-Kordic, I., Hayes, N., Reay, S. D., Corbet, C., & Chan, A. (2017). Co-designing for mental health: creative methods to engage young people experiencing psychosis. *Design for Health*, 1(2), 229-244.

Patrício, L., Raymond, P,. Fisk, J. & Larry, C. (2011). Multilevel Service Design: From Customer Value Constellation to Service Experience Blueprinting. *Journal of Service Research*, 14(2), 180-200.

Patrício, L., Nelson, F., Jorge, G.T., & Fisk R.P. (2018). Service Design for Value Networks: Enabling Value Cocreation Interactions in Healthcare. *Service Science*, 10 (1), 76-97.

Pawson, R. 2013. The science of evaluation: a realist manifesto, London, Sage.

Perkins, A., Ridler J., Browes D., Peryer G., Notley C., & Hackmann C. (2018). Experiencing mental health diagnosis: a systematic review of service user, clinician and carer perspectives across clinical settings. *Lancet Psychiatry*, http://dx.doi.org/10.1016/ S2215-0366(18)30095-6.

Pestoff, V. (2006) Citizens and co-production of welfare services: Childcare in eight European countries. *Public Management Review*, 8(4), 503-519.

Phillips, P., Sandford, T. & Johnston, C. (2012). *Working in mental health: practice and policy in a changing environment.* London, Routledge.

Piat, M., & Sabetti, J. (2009). The Development of a Recovery-Oriented Mental Health System in Canada: What the Experience of Commonwealth Countries Tells Us. *Canadian journal of community mental health*, 28(2), 17-33.

Pierri, P. (2017). Decentralising Design. Raising the Question of Agency in Emerging Design Practice, *The Design Journal*, 20(sup1), S2951-S2959.

Pierri, P., Warwick, L., & Garber, J. (2016). Embedding design in a mental health network, In N. Morelli & A. de Götzen, F. Grani (Eds.), *Proceedings of ServDes. 2016. Service Design Geographies* (pp. 580-585). Linköping: Linköping University Electronic Press.

Pierson, P. (1993) When Effect Becomes Cause: Policy Feedback and Political Change. *World Politics*, 45, 595-596.

Roberts, G., & Boardman, J. (2013). Understanding ‘recovery’. *Advances in psychiatric treatment*, 19, 400–409.

Room, G. (2013). Evidence for agile policy makers: the contribution of transformative realism. *Evidence & Policy*, 9(2), 225-244. doi:10.1332/174426413X662653

Sangiorgi, D., Patrício, L. & Fisk R. (2017). Designing for Interdependence, Participation and Emergence in Complex Service Systems, in *Designing for Service: Key Issues and New Directions*, Daniela Sangiorgi and Alison Prendiville, eds., London, UK: Bloomsbury, 72-86.

Schon, D. A. (1983). *The Reflective Practitioner: How professionals think in action*. Michigan: Basic Books.

Slade, M., Amering, M., Farkas, M., Hamilton, B., O'Hagan, M., Panther, G., & Whitley, R. (2014). Uses and abuses of recovery: Implementing recovery‐oriented practices in mental health systems, *World Psychiatry*, 13(1), 12-20.

Speed, E. (2006). Patients, consumers and survivors: A case study of mental health service user discourses. *Social Science & Medicine*, 62, 28–38.

Springham, N., Wraight, S., Prendergast, C., Kaur, J., & Hughes F. (2011). ResearchNet: Research as recovery. *Mental Health and Social Inclusion*, 15(1), 34-37.

Springham, N., & Robert, G. (2015). Experience based co-design reduces formal complaints on an acute mental health ward. *BMJ Open Quality*, 4(1), u209153-w3970.

Szücs Johansson, L., Vink, J., & Wetter-Edman, K. (2017). A Trojan horse approach to changing mental health care for young people through service design. *Design for Health*, 1(2), 245-255.

Tenbensel, T. (2015). Complexity and health policy. In R. Geyer & P. Cairney (Eds.), *Handbook on Complexity and Public Policy* (pp. 369-383): Edward Elgar M.U.A.

Tobiasson, H., Sundblad, Y., Walldius, Å., & Hedman, A. (2015). Designing for active life: Moving and being moved together with dementia patients, *International Journal of Design*, 9(3), 47-62.

Vink, J., Joly, M. P., Wetter-Edman, K., Tronvoll, B., & Edvardsson, B. (2019). Changing the rules of the game in healthcare through service design. In *Service Design and Service Thinking in Healthcare and Hospital Management* (pp. 19-37). Springer, Cham.

Yin, R. K. (2009). *Case study research: Design and Methods Fourth Edition*. London: Sage.