

The Symphonic Passion Chorus:
A Case Study in Meaning-Centered Service Design

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Submitted to OCAD University in partial fulfillment of the requirements for the degree of
Master of Design in Inclusive Design

Toronto, Ontario, Canada

2024

Acknowledgements

We extend our deepest gratitude to the individuals whose invaluable contributions made this study possible. We are especially thankful to David Barter, whose guidance in initiating our process and conducting insightful interviews provided a foundational perspective on the choir. Our advisory team—Dr. Barry Isaacs, Carolyn Elias, and Sandra Law—played a crucial role in coordinating our research activities and offered significant feedback throughout our analysis and writing process.

Special thanks are due to our Primary Advisor Dr. Peter Coppin, who demonstrated a profound commitment to our educational journey. His approach allowed us true autonomy to pursue our insights and encouraged an in-depth exploration of the underlying concepts of our research. Dr. Coppin's dedication went far beyond the usual expectations of an advisor, establishing him as a genuine collaborator in our work.

Finally, we wish to acknowledge Ana Santos, the facilitators, and the members of the Symphonic Passion Chorus. Their openness in welcoming us into their vibrant community was not only inspiring but instrumental in the success of our project.

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Abstract

Organizations that provide services for adults with intellectual and developmental disabilities (IDD) struggle to provide meaningful participation for their constituents. IDD adults experience higher rates of loneliness and isolation than the general population—a situation that the COVID-19 pandemic further exacerbated. However, in contrast to these difficulties and trends, the Symphonic Passion Chorus, a musical choir for adults with IDD in Toronto, has supported song learning and socialization for its members for the past 19 years. Incredibly, despite challenges such as the COVID-19 pandemic, the choir maintained a stable membership supported by a resilient community, even overcoming Information and Communication Technology (ICT) barriers through home-grown and community-generated workarounds. To better understand factors that contribute to the choir's longevity, resiliency, and ability to overcome barriers, we employed a qualitative research design consisting of semi-structured interviews, field observations, and thematic analysis, revealing how the choir can be understood as an intrinsically meaningful (rewarding for its own sake) coordinative art form that draws members together, thus fostering cohesion: E.g., members described being motivated by opportunities for creative expression and shared purposes, which inspired them to self-organize to develop ICT-based adaptations and workarounds in response to pandemic-related challenges to maintain connections to each other and the intrinsic rewards of the choir. Our findings suggest that the choir's self-regulating feedback loops are akin to a complex adaptive system, which can provide insights for improving adaptable and resilient supports for the adult IDD population. Informed by these findings, we offer recommendations for 1. Meaning-Centered Design (MCD), which we conceptualize as integrating intrinsically meaningful activities with the core service activities of an organization; 2. Embedding participatory research into organizational activities to reveal emergent community-driven innovation that supports organizational aims that fall outside of official organizational mandates. Our findings, MCD conceptual model and recommendations serve as a framework for developing inclusive, resilient, and adaptive services that enhance the well-being of individuals and communities.

Keywords: Intellectual and Developmental Disabilities, Adults, Choir, Social Connection, Coordinative Arts, Well-being, Accessibility, Co-Design, Meaningful Service Design, Complex Adaptive Systems, Social Innovation

Introduction

Adults with intellectual and developmental disabilities (IDD) need a robust network of services tailored to their diverse needs, including educational, social, recreational, and therapeutic support (Wilder, 2011). In Canada, there remains a significant gap in providing enriching social and learning experiences for this demographic (Community Living Ontario, 2021; Grogan et al., 2019; Merrells et al., 2020). These programs are essential to support individuals with IDD who face a greater prevalence of loneliness and isolation compared to the general population (Alexandra et al., 2018; Robinson, 2022). Recently, events like the COVID-19 pandemic have exacerbated these challenges, resulting in increased reports of isolation and stress, which adversely affected the mental health and overall well-being of adults with IDD. These issues highlight the need for accessible and specifically tailored supports (Lake et al., 2021; Wilson et al., 2017).

Literature on adult IDD services identifies how social and learning experiences are emphasized in early childhood (Shepherd et al., 2015; Woodgate et al., 2008). However, these services are often discontinued as individuals transition into adolescence and adulthood. These issues are tied to resources and funding for public programs prioritized for childhood age groups and inconsistent policies that govern funding for programs and services for adults (Dickson, 2022). To compound the lack of services, adults face extensive wait times when accessing existing programs. There are private programs that aim to fill the current gaps. However, many families and individuals struggle to afford the cost of private services (Chawrun, 2023).

Many adults also have difficulty accessing services and support due to a lack of accessibility (Milen et al., 2017). These issues can include awareness of available programs or physical barriers, such as a lack of transportation to programs concentrated in city centers (Milen et al., 2017). Furthermore, some service providers may have a limited understanding of individuals' needs. Critics of IDD service systems emphasize the need for comprehensive, inclusive programs that cover the life span and meet individuals along a spectrum of abilities (Lai & Weiss, 2017). It is essential to address these gaps to ensure that adults with IDD have access to lifelong meaningful social and learning opportunities.

The Symphonic Passion Chorus

To explore service provision and design for adults with Intellectual and Developmental Disabilities (IDD), we collaborated with Surrey Place in Toronto, an organization dedicated to serving this community. Ana Santo, a clinician there, introduced us to The Symphonic Passion Chorus, a community-based choir that engages adults with IDD. Upon learning about the choir's ability to navigate the challenges posed by the COVID-19 pandemic, maintain participant engagement, and innovate in the face of adversity, we were immediately intrigued and wanted to delve deeper into understanding the factors contributing to its resilience.

The Symphonic Passion Chorus not only provides a space for members to learn and perform songs but also fosters opportunities for socialization and community building. Our firsthand observation of a choir rehearsal at Surrey Place revealed its dynamic nature and accessible program design, underscoring the choir's potential as a 'natural lab' for studying inclusive service design. We were particularly interested in the iterative and inclusive processes that have evolved organically within this setting.

During our discussions with Ana Santo, the lead facilitator of the choir, we gained valuable insights into the considerable challenges the choir faced during the pandemic and the necessary adaptations they made to transition to a hybrid programming model. These conversations further solidified our decision to study the Symphonic Passion Chorus as an example of resilient and adaptive design.

Origins and Significance of the Symphonic Passion Chorus

The Symphonic Passion Chorus was founded in 2005 by a speech-language pathologist and an occupational therapist. The choir was created to meet the social and recreational needs of its members. Maintaining a consistent membership of 25-30 adults over the past 19 years, the choir is supported by a diverse array of clinicians, musicians, conductors, and community volunteers. The choir's operations are centered around weekly rehearsals from September to December each year, culminating in a public performance that not only engages the local community but also generates proceeds to support choir activities for the subsequent year.



Figure 1. Illustration of the Symphonic Passion Chorus as an interconnected system. Meaningful elements emerge from and reinforce the central feedback loop. The outer circles represent the outcomes of these interactions. The diagram demonstrates how the choir's meaningful elements and the central feedback loop create a resilient, and adaptive complex system.

Through our engagement with the choir, including initial interviews and field observations, we discovered that it exemplifies a model for service design aimed at enhancing well-being and resilience. Figure 1 depicts the choir as a dynamic system centered around a deeply meaningful activity: individuals gathering to sing together. This activity is enriched by several core elements, for example, a shared purpose of preparing for a holiday concert, opportunities for creative expression, engaging in learning and skill development, and the collective joy experienced during group singing. These elements appear to interact to create feedback loops (Meadows, 2008); as the system meets important needs like socialization and learning, members' motivation to participate increases. These feedback loops appear to strengthen the overall resilience and adaptability of the choir. Ultimately, this meaningful, adaptive, and resilient system enhances its well-being, benefiting the system and its individual members.

Purpose & Overview of the Project

The Symphonic Passion Chorus serves as a compelling model for inclusive, meaning-centered design, demonstrating the transformative potential of prioritizing meaningful engagement, intrinsic motivation, and social connection in supports for individuals with intellectual and developmental disabilities (IDD). By harnessing the power of music and coordinative arts (Brown & Cameirao, 2023), fostering a sense of belonging and purpose, and adapting to challenges with resilience and creativity, the choir showcases key principles and practices that should guide the development of effective, sustainable, and empowering supports for this population. This project examines the Symphonic Passion Choir as a complex and dynamic system, focusing on design considerations that have made the choir resilient in the face of challenges. We use the choir's response to transitioning online during the COVID-19 pandemic as a case study to provide relevant recommendations for effective and sustainable service design and the meaningful application of ICTs.

We begin our report by addressing the gaps in service provision for meaningful activities for adults with intellectual and developmental disabilities (IDD) in Canada. Building on the characteristics we observed in the choir, we then engage with literature on what makes experiences meaningful and intrinsically motivating for people, and how these concepts relate to the type of group cohesion we noted.

Our methodology section details the approaches we used in this study, including descriptions of the interview, data collection, and analysis processes. Following this, we provide an overview of the Symphonic Passion Chorus, focusing on the meaningful elements that foster individual learning, deepen social connections, and enhance the well-being of the choir community. We include a timeline of how these elements have evolved over the choir's nineteen-year history and examples of changes and disruptions within the choir ecosystem.

Next, we zoom in on the specific disruption that emerged due to the pandemic and describe the ICT-driven adaptations that the choir integrated in response to transitioning online. We outline three broad challenges they faced including: accessing the weekly rehearsals, learning and performing the songs remotely, and accessing the year-end concert. Each of these challenges is followed by the choir's adaptive responses such as creating virtual rehearsal and performance formats and supporting hybrid participation. Based on these findings, we provide detailed recommendations on how to prioritize

meaning-centered design, accessibility, and community needs in the creation of tools and supports for individuals with IDD.

Finally, we conclude our report by emphasizing the importance of meaning-centered design. We discuss how meaningful elements such as joy and motivation within the choir were leveraged to circumvent system-level disruptions like COVID-19, enabling this activity to be resilient and adaptive even in an online space.

Intellectual and Developmental Disabilities (IDD) and Meaningful Service Design

Individuals with intellectual and developmental disabilities (IDD) require comprehensive and varied supports throughout their lives. These supports often encompass specialized educational programs to enhance learning, tailored healthcare to address specific medical needs, and therapeutic interventions such as speech language therapies to improve functional abilities. Employment supports are also crucial for fostering independence and economic participation, while social and recreational opportunities are necessary to support community integration. Additionally, assistance with daily living activities and targeted behavioral and emotional supports help manage specific challenges associated with IDD. The alignment of these services with individual needs is essential to significantly improve quality of life outcomes and ensure the rights of individuals with IDD are upheld (Verdugo et al., 2020).

Despite the essential nature of these supports, current service provision models often fall short in meeting the needs of adults with IDD, particularly in providing access to meaningful activities and social connections. This area also remains significantly understudied, a problem that is especially pronounced in the Canadian context (Community Living Ontario, 2021; Grogan et al., 2019; Merrells et al., 2020). Due to this service gap, adults with IDD experience heightened social isolation, loneliness, and reduced well-being, an issue exacerbated by the COVID-19 pandemic (Lake et al., 2021; Wilson et al., 2017).

Engaging in meaningful activities has been identified as a key factor in promoting well-being, resilience, and personal growth among individuals with IDD (Merelles et al., 2019). Dell Fave and Soosai-Nathan (2014) conceptualize meaning as a sense of interconnectedness, both in terms of social relationships and in being part of something larger than oneself. Their work provides empirical evidence supporting the link between meaning, interconnectedness, and well-being. Similarly, Martin Seligman's (2011) PERMA model of well-being identifies five essential elements: Positive emotions, Engagement,

Relationships, Meaning, and Accomplishment. This model provides a comprehensive framework for understanding how meaningful activities, such as group singing, can contribute to well-being by fostering positive emotions, encouraging engagement, building relationships, providing a sense of meaning, and offering opportunities for accomplishment.

A crucial factor in fostering sustained engagement and well-being is intrinsic motivation, or the drive to engage in activities for their inherent satisfaction (Ryan & Deci, 2000). Three basic psychological needs—autonomy, competence, and relatedness—are essential for intrinsic motivation and optimal functioning. Thus, meaningful activities that satisfy these needs can enhance intrinsic motivation and, in turn, support well-being and resilience.

To design meaningful activities, participatory and co-creative approaches that involve service users and stakeholders in decision-making processes and development are needed (Scholz et al., 2017). These approaches can lead to more motivating, and responsive support for individuals with IDD, as exemplified by the success of the Symphonic Passion Chorus in fostering meaningful engagement, intrinsic motivation, and resilience among its members.

Group Singing, Social Bonding, and Well-being

Participating in activities such as group singing has been shown to have numerous psychological and social benefits, including increased social bonding, trust, and a sense of belonging (Haslam et al., 2009). As Haslam and authors (2009) relate, “When people perceive themselves to share group membership with other people in a given context, they are motivated to... coordinate their behavior in relation to activities that are relevant to that identity” (p.8). For individuals with IDD, group singing can serve as an intrinsically motivating and meaningful activity that fosters social connections and supports well-being.

Steven Brown's research on the clinical uses of music explores the potential of music to promote well-being, social bonding, and resilience (Brown & Cameirao, 2023). Brown (2000) argues that music and other arts have evolved as a means of fostering social cohesion and emotional regulation, making them powerful tools for supporting mental health and well-being.

Brown introduces the concept of coordinative arts, which are human behaviors that involve the coordination of multiple individuals in time and space, such as music-making and dance (Brown, 200; Brown & Dissanayake, 2018). He argues that coordinative arts

have played a crucial role in human evolution by fostering social bonding, group cohesion, and emotional regulation. These social functions of coordinative arts are exemplified in the Symphonic Passion Chorus through the sense of shared identity, trust and cooperation in the program.

Brown's work further elucidates that music and other coordinative arts can assist individuals in coping with adversity (Brown 2000; Brown, 2019). By engaging in participative rituals like music and dance, individuals experience sensorimotor entrainment that fosters group emotional expression and cohesion. Brown argues that this can be beneficial in facilitating conflict resolution and offering cathartic relief during times of stress. This insight is particularly relevant to understanding how the Symphonic Passion Chorus adapted and thrived during the challenges posed by the COVID-19 pandemic.

Resilient and adaptive service systems are characterized by flexibility, innovation, and stakeholder collaboration (Woodward et al., 2023). Designing services that prioritize meaningful activities and intrinsic motivation can help build resilience and adaptive capacity, enabling service systems to better respond to the needs of individuals with IDD, even in the face of challenges like the COVID-19 pandemic.

This section has outlined foundational concepts and principles to understanding how well-being might be facilitated for individuals with intellectual and developmental disabilities (IDD) through meaningful service design. We now turn our attention to the methodological approaches used in this research to further investigate the Symphonic Passion Chorus as a complex adaptive system.

Methods

This study employed a qualitative research design, utilizing semi-structured interviews, field observations, and thematic analysis to gain a comprehensive understanding of the Symphonic Passion Chorus. These methods were specifically chosen due to the real-world context of the choir, allowing for an in-depth exploration of its dynamic social interactions, practices, and the lived experiences of its members.

Semi-Structured Interviews

Participants were recruited from the Surrey Place ecosystem, which included staff, clients, and other stakeholders. The recruitment process was facilitated by Surrey Place, to ensure effective coordination of interviews. We conducted 16 interviews with key informants

such as the current choir leader, the choir's founder (who has since retired), several clinicians (both associated with and external to the choir), a musician, and clients with IDD. These interviews were held over Microsoft Teams, recorded, and transcribed with the aid of Otter AI. A specially designed interview guide helped elicit detailed information on the participants' experiences, the impact of the choir on their well-being, and the challenges and adaptations faced during the pandemic. All transcripts were subsequently coded and analyzed using Dedoose, a qualitative data analysis software.

Field Observations

In addition to interviews, we conducted field observations. We visited choir rehearsals and attended a public performance to observe the choir's activities, processes, and interactions firsthand. These observations provided critical insights that complemented the interview data, offering a richer, more comprehensive understanding of the choir's operational dynamics.

Data Analysis

We conducted a thematic analysis, following the six-phase method outlined by Braun and Clarke (2006)]. This involved familiarizing ourselves with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and finally, producing a detailed report. The coding process was executed using Dedoose, which facilitated the systematic organization and retrieval of coded data. Additionally, we conducted a focused analysis on the specific tools and interventions in the choir to identify best practices and innovative solutions that could inform recommendations for inclusive design in similar settings.

Ethical Considerations

This study was conducted in accordance with the ethical guidelines set forth by both the Research Ethics Boards at [redacted organization name] and [redacted academic institution name]. Informed consent was obtained from all participants prior to their involvement in the study, and appropriate measures were taken to ensure the confidentiality and anonymity of the participants' data.

An In-Depth Look at the Symphonic Passion Chorus

This section explores the roles and dynamics of the choir facilitators and members, informed by our detailed observations and interviews. Here, we outline the facilitators' multifaceted responsibilities, including the logistical organization of rehearsals, preparation for performances, enhancing member engagement, and advocating for the choir's broader community needs. Simultaneously, we examine the members' journey, emphasizing their significant role in cultivating the choir's social environment during rehearsals. The operational strategies of the choir integrate seamlessly with its community ethos, with each practice and tool designed to serve dual purposes: advancing music education and fostering social support.

The Choir Facilitator's Journey

The role of the choir's lead facilitator at the Symphonic Passion Chorus is multifaceted and requires diligent preparation and a deep commitment to accessibility and inclusivity. Supported by a diverse group of clinicians, musicians, and volunteers, the lead facilitator begins the choir's preparation months in advance of the September rehearsals. During the summer, the lead facilitator collaborates with this team to carefully curate a list of holiday songs, balancing classic selections with unique, lesser-known songs. This mixture not only provides familiarity but also introduces new challenges for choir members, enriching their experience with new words, meanings, and contexts.

To accommodate the diverse needs of its members, the facilitators employ a variety of educational tools and supportive practices. The team meticulously records selected songs, uploading them as YouTube links and burning them onto CDs. It is important to note that, as this is an adult population, some members may not be familiar with accessing technology such as YouTube, prompting the continued provision of CD versions of the song recordings. Additionally, the team develops adaptive learning materials, such as image and text-based songbooks, using software that converts text to images to support members who benefit from this option.

Beyond musical preparation, the lead facilitator manages the choir's finances, ensuring that the program's finite resources are efficiently allocated to cover expenses such as songbooks, CDs, subsidized pizza meals, choir uniforms, performance-related costs, and compensation for musicians. Furthermore, profits generated from holiday performances are managed carefully to fund the next cycle of the program.

Each week, the facilitation process begins anew with the lead facilitator emailing or calling choir members and their caregivers to provide essential updates and information about the upcoming rehearsals. Prior to each rehearsal, the facilitator reviews a custom seating chart to adjust the arrangement based on learning needs and social dynamics observed from the previous week. Members who need help with tasks like turning songbook pages or keeping focus may be paired with a volunteer or designated clinician. These seating adjustments are crucial for optimizing the learning and social experiences of members.

Before rehearsals, a facilitator collects individual pizza preferences from members and orders the evening meal accordingly. These preferences are recorded on a customized chart, demonstrating the choir's commitment to respecting individual choices and needs. Once the rehearsal begins, structured interventions such as mindfulness exercises are introduced to center and focus the group before singing. 'Pizza time' at the end of rehearsals provides a cherished opportunity for members to collectively share stories and experiences, further building their sense of community.

The Choir Member's Journey

For choir members, engagement extends beyond weekly rehearsals, as members often practice songs at home using accessible resources such as songbooks, YouTube links, and CDs. On rehearsal days, members travel to Surrey Place using various means of transportation, including public transit or accessible transit services. Notably, many members arrive as early as two hours before rehearsal to socialize in the Surrey Place waiting room, a testament to their need for social interaction and the strong community bonds formed within the choir.

In the waiting room, members engage in conversations, decide on their pizza orders with friends, and assist each other in counting money for the evening meal. Once in the rehearsal room, members find their assigned seats, thoughtfully arranged by the lead facilitator to support positive interactions and effective learning. The session begins with a mindfulness breathing exercise, led by the facilitator, which helps members transition from the bustling energy of the waiting room to the focused calm required for rehearsal.

A key observation is the integral role choir members play in creating a supportive and compassionate environment. Throughout rehearsals, members can be seen assisting each other with song learning and actively participating in discussions about the meanings

of words. During pizza time, in addition to sharing stories, choir members demonstrate care for one another's personal experiences, which is central to the quality of their community interactions. For example, when the choir collectively witnessed a member facing a health challenge, they quickly mobilized to coordinate their support for both the individual and each other.

The dynamics within the choir illustrate two critical components at play: facilitators who design every aspect of the program with utmost consideration for inclusivity and accessibility, and choir members who bring genuine care, compassion, and friendship to the space.

Understanding the Choir: A Meaningful and Motivated System

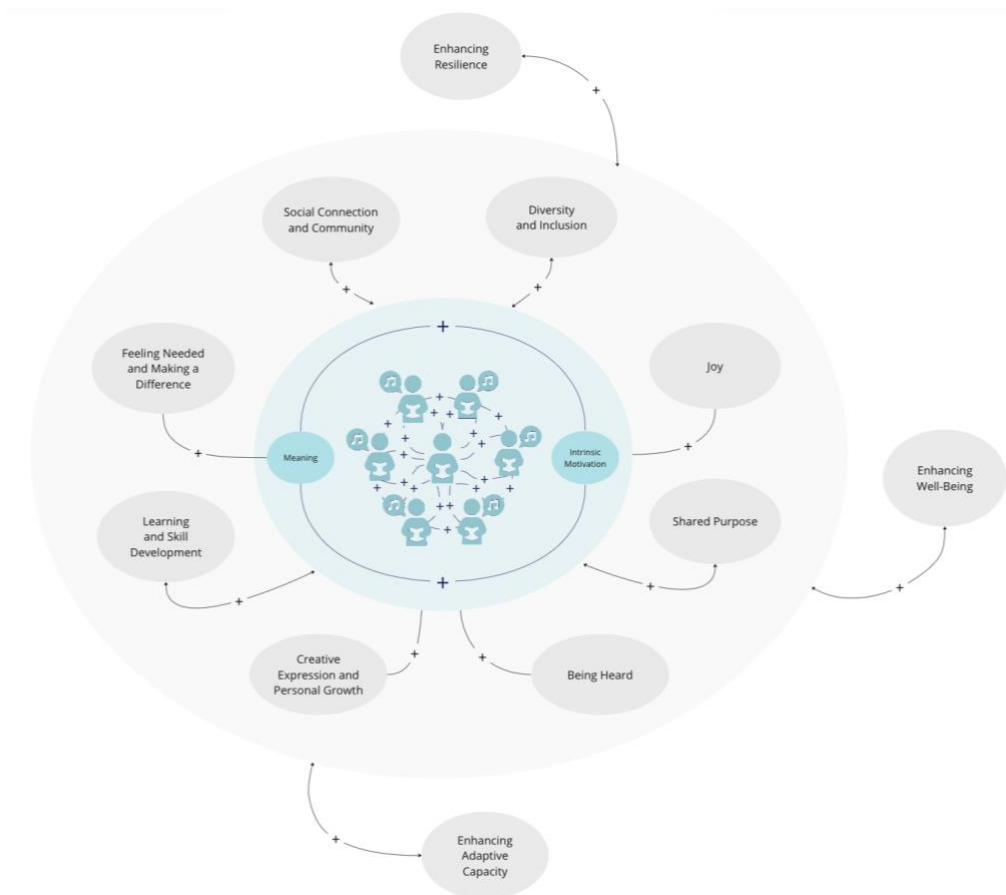


Figure 2. The Symphonic Passion Chorus as an interconnected system. At its core, individuals are shown linked through the act of singing together. Encircling this central group is a feedback loop consisting of "Meaning" and "Intrinsic Motivation," both of which are fostered through participation in this coordinative activity.

Our analysis of the choir suggests that it fosters meaning and intrinsic motivation among its members. At the heart of the choir's success lies its ability to engage participants in coordinative arts, such as singing, which require synchronization of efforts and creating a sense of community and individual satisfaction (Brown, 2000). This synchronization aligns with Ryan and Deci's Self-Determination Theory (2000), which posits that activities that satisfy three basic psychological needs—autonomy, competence, and relatedness—enhance intrinsic motivation.

Coordinative singing, as observed in the Symphonic Passion Chorus, appears to meet these needs in several ways. While participating in the choir coordinates its members, they also maintain a degree of autonomy in their individual expression and interpretation of the music. The choir encourages members to share personal stories and thoughts, fostering a sense of self-directed engagement. Second, as choir members learn new songs and techniques, they develop their musical skills and experience a sense of accomplishment. In addition, the choir's use of various learning modalities and individualized support facilitates personal growth. Finally, the shared experience of singing together creates a strong sense of connection and belonging among choir members. The social interactions during rehearsals and breaks further strengthen these bonds, contributing to a feeling of relatedness.

By satisfying these basic psychological needs (autonomy, competence and relatedness), coordinative singing in the Symphonic Passion Chorus fosters intrinsic motivation among its members. This motivation in turn, contributes to the perception of the activity as meaningful and valuable, as participants engage in singing for its inherent satisfaction and enjoyment. Delle Fave et al. (2011) explore the concept of eudaimonic happiness, which is derived from engaging in meaningful activities that promote personal growth and self-realization. They argue that activities perceived as meaningful are intrinsically valuable, contributing to individual well-being, fostering a sense of interconnectedness with others, and supporting the pursuit of a fulfilling life.

The meaningful elements that emerge from the choir's activities, such as opportunities for creative expression, personal growth, and being heard, further reinforce the perception of singing as a significant and a worthwhile pursuit. These elements interact through feedback loops, creating a dynamic system that enhances the well-being of both individuals and the choir as a whole. As the choir meets important needs like socialization

and learning, members' motivation to participate increases, strengthening the overall resilience and adaptability of the system.

The Choir as a Complex Adaptive System

The resilience and adaptability of the Symphonic Passion Chorus can be further understood by viewing it as a complex adaptive system (CAS). CAS are systems composed of multiple interacting elements that give rise to emergent properties and have the ability to adapt to changes in their environment (Holland, 1995).

The choir exhibits key characteristics of CAS:

1. Multiple interacting elements: The choir comprises diverse elements, such as members, facilitators, songs, and learning modalities, which interact to create the overall experience and impact of the system.
2. Emergent properties: The interactions among the choir's elements give rise to emergent properties, such as the sense of meaning, intrinsic motivation, and resilience, which cannot be fully understood by examining the elements in isolation.
3. Adaptation: The choir has demonstrated the ability to adapt in response to changes, such as the challenges posed by the COVID-19 pandemic, by adjusting its practices and leveraging technology to maintain its functionality and positive impact.

By understanding the Symphonic Passion Chorus through the lens of CAS, we can better appreciate how its various elements interact to create a resilient and adaptive system that fosters meaning and well-being for its members. This perspective also highlights the importance of designing supports for individuals with intellectual and developmental disabilities (IDD) that are flexible and responsive to changing circumstances.

In the following section, we will explore the specific meaningful elements that emerge from the choir's activities and how these elements interact to create a resilient and adaptive system.

Emergence of Meaningful Elements of the Choir

The Symphonic Passion Chorus's success in fostering a sense of meaning and intrinsic motivation among its members can be attributed to the presence of several interacting elements that collectively create a deeply enriching experience. These

meaningful elements, which emerged from our qualitative data analysis, include opportunities for being heard, creative expression and personal growth, experiences of joy, social connection and community, a shared purpose, and engagement in learning and skill development. Each of these elements contributes to the choir's overall success as a complex adaptive system by reinforcing the central feedback loop of meaning and intrinsic motivation.

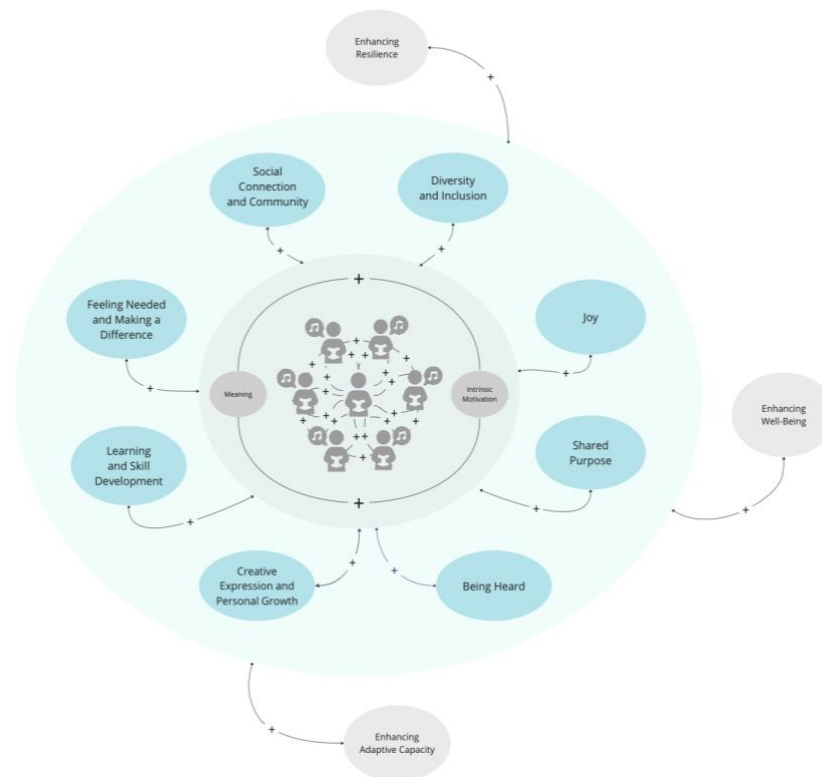


Figure 3. Elements that surround and contribute to feedback loops that engender meaningful experiences that give rise to increased levels of motivation for the people involved, including experiences of: joy, being heard, social connections that foster a sense of community, and inclusion for diverse participants, having a shared purpose, creative expression and personal growth, learning and skill development, feeling needed and making a difference.

Being Heard

The choir appears to provide a platform for members to have their voices heard, both literally and metaphorically. Through singing, they can express themselves and be part of a collective voice. Additionally, the choir encourages members to share personal stories, announcements, and thoughts during rehearsals, creating a space where they feel valued and listened to. This experience of being heard is exemplified in a quote from the choir co-conductor who relates,

Even just like something as simple as hearing yourself, hearing your own individual voice, being heard in, like, even amongst a collective of others, instead of like being buried underneath it, that makes sense. You know, because nothing, nothing ever disappears. It's all it all comes together. But everybody's involved. It doesn't matter. Like how little sound you make, or how much sound you make, right (Co-conductor, interview, 2024).

Creative Expression and Personal Growth

Singing and music-making offer opportunities for creative expression and personal growth. Members can explore their creativity, challenge themselves with new and complex songs, and experience a sense of accomplishment when they learn and perform challenging pieces. The choir also fosters personal development by working on communication skills, self-confidence, and social skills. As the choir's co-conductor related, "For me, it's like, what can I do to help make sure that other people have that creative experience that we sort of lose as we move into adulthood?" (Co-conductor, interview, 2024).

Joy

Choir members and facilitators alike have described the program as a source of joy and happiness. The genuine excitement, pride, and enjoyment experienced during rehearsals and performances create a joyful atmosphere. In a video capturing the choir's holiday performance, a choir member echoes this sentiment stating, "I love to be in the choir, it gives me joy...and I enjoy every minute." The facilitators also emphasize the importance of maintaining a sense of joy throughout the learning process, even when tackling challenging material,

It's really just joyous. I think it feels, maybe it feels like a community. For one thing, it feels like you're really part of something. And I think the magic of it is that we feel like we're all part of it together (Clinician, interview, 2024).

Social Connection and Community

The choir fosters a strong sense of social connection and community. Members form meaningful relationships with their peers, staff, and volunteers, and the choir becomes a significant social event in their lives. A likely explanation is that the shared experience of singing together creates a sense of togetherness and belonging, and the social interactions during rehearsals and pizza time further strengthen these connections.

It is about that meaningful community participation for them. Like this is something they legitimately enjoy, and then they can be proud of the performance at the end, and it can invite people to it and as it gets closer to the performance. People get so excited and nervous and it's just, yeah, magical (Lead facilitator, interview, 2024).

Shared Purpose

The choir provides a shared purpose for its members – to learn and perform songs together. This shared goal brings a sense of agency, accomplishment, and pride, particularly for individuals who may not have many opportunities to participate in such meaningful activities. The choir also allows members to be part of something larger than themselves. A clinician who facilitates the choir stated, “We're here to practice the songs and rehearse because we have a performance. And I think they appreciate that, and they love to be a part of something like that” (Clinician, interview, 2024).

Learning and Skill Development

The choir incorporates various learning modalities and individualized support to facilitate skill development in areas such as communication, articulation, breath control, pitch accuracy, memory, and social skills. The process of learning and practicing songs together fosters cognitive engagement, personal growth, and a sense of achievement for the members.

We actually came up with 10 different goals. Vocabulary, memory, articulation, breath awareness. same control, loudness control, pitch control, self-confidence, self-esteem, and developing social relationships, as well as teamwork (Choir founder, interview, 2024).

Diversity and Inclusion

The choir embraces diversity and inclusion by accommodating members with varying abilities and needs. Through strategic seating arrangements, individualized support, and adapted methods, everyone can participate regardless of their level of ability. The choir provides an inclusive environment where individuals who may not be able to access regular community or church choirs can experience the joy of singing and performing. As a choir clinician relates, “We’re making it very... it’s not like, because they have disabilities...we’ve tried to make it as much like a regular choir experience as, as possible” (Clinician, interview, 2024).

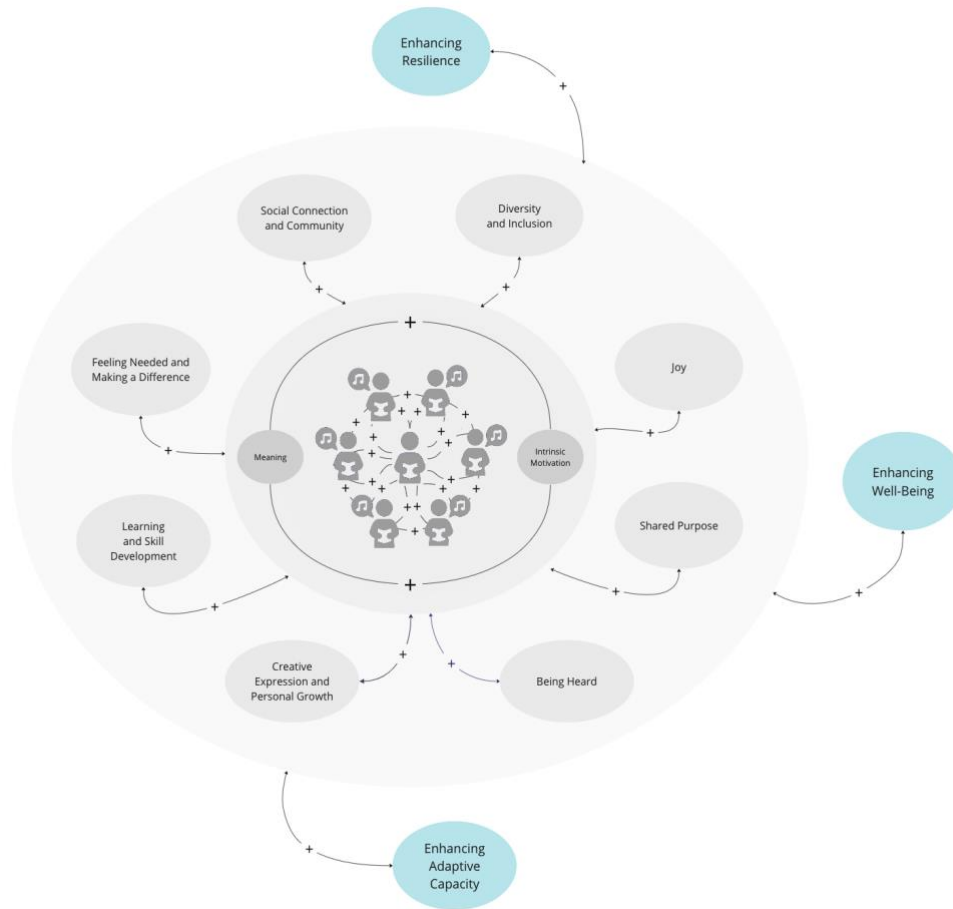


Figure 4. The meaningful elements create a fabric of interconnected meaning. We posit that this supports resilience, well-being and adaptive capacity in the choir.

These meaningful elements interact through feedback loops (Meadows, 2008), reinforcing the central cycle of meaning and intrinsic motivation that drives the choir's success as a complex adaptive system. As choir members experience opportunities for being heard, creative expression, joy, social connection, shared purpose, and learning, their perception of the activity as meaningful and intrinsically valuable is strengthened. Together, these meaningful elements create a fabric of interconnected meaning. We posit that this interconnection - which as Delle Fave and Soosai-Nathan (2014) describe, is meaning – drives resilience and adaptive capacity.

In the next section, we will examine how these meaningful elements and the central feedback loop of meaning and motivation have enabled the choir to evolve and adapt over time, particularly in the face of challenges such as the COVID-19 pandemic.

Evolution of the Symphonic Passion Chorus

Throughout its 19-year history, the Symphonic Passion Chorus has demonstrated resilience by adapting to various challenges and navigating unprecedented circumstances. The longevity of the choir and its ability to overcome obstacles underscore its adaptability. Additionally, the activities and ethos of the choir suggest that it has been effective in establishing a foundation of meaning for its members. By examining the choir's evolution, we can gain valuable insights into how the meaningful elements and intrinsic motivation present in the choir have contributed to its resilience and adaptability over time.

As discussed earlier, the choir can be understood as a complex adaptive system, characterized by self-organization, emergent properties, and the ability to adapt to changing conditions. The choir's evolution is a testament to these qualities, as it has consistently found ways to maintain its focus on meaningful engagement and foster a strong sense of community, even in the face of significant challenges.

The following timeline highlights the key stages in the choir's development, from its establishment in 2005-2006 to its navigation of the COVID-19 pandemic. Each stage illustrates how the choir has leveraged its meaningful elements and intrinsic motivation to build resilience, adapt to new circumstances, and continue to positively impact the lives of its members.

Establishing a Foundation of Meaning (2005-2006)

- The choir was founded by a speech-language pathologist and an occupational therapist to meet the social and recreational needs of its members.
- The choir adopted ideas from a previous children's choir, such as using visual supports for lyrics, to create an accessible and engaging experience.
- The choir started with 13 clients and 3 volunteers, quickly growing to 35-36 members, demonstrating the value and appeal of this meaningful activity.

Cultivating Community and Resilience (2006-2010)

- The choir ran from September to May each year, with holiday and spring concerts, providing a consistent and meaningful experience for its members.
- As the choir grew, the facilitators adapted by involving more volunteers to help manage the increased workload and ensure the choir's sustainability.
- The choir welcomed members from another community choir that had ended, demonstrating its role as a resilient community resource.

Adapting to Challenges and Ensuring Continuity (2011-2017)

- When management expressed concerns about the time and resources dedicated to the choir, there was a risk that the program might be discontinued. The choir facilitators advocated for its importance and found a compromise by shortening the choir's duration.
- The choir continued to operate with increased volunteer involvement, demonstrating its ability to adapt to challenges and maintain its meaningful impact.
- After 12 years, the original facilitator passed leadership to a clinician who had a strong musical background and interest in the choir, ensuring the choir's continuity and resilience.

Navigating the COVID-19 Pandemic (2020 - Present)

- The COVID-19 pandemic posed significant challenges to the choir, threatening its ability to connect in person, learn and perform songs, and work towards its shared purpose.

- The choir adapted by transitioning to virtual rehearsals, providing technical support and resources to ensure accessibility for all members.
- Despite the challenges, the choir maintained its full membership throughout the pandemic, demonstrating the strength of its community and the resilience fostered by its meaningful engagement.
- The choir continued to innovate and create meaningful experiences, such as composing an original song, "Part of the Group," inspired by the importance of their community during this challenging time.

The choir's history exemplifies its adaptability, resilience, and meaningful impact on both its members and the broader community. By exploring the choir as a complex adaptive system, we can appreciate how these core elements of meaning, and motivation have fueled its evolution through various challenges. The timeline detailed above highlights the COVID-19 pandemic as a significant period during which innovation naturally emerged from this system. In the next section, we will analyze these specific adaptations in greater detail.

Findings

Choir Adaptations Due to the COVID-19 Pandemic

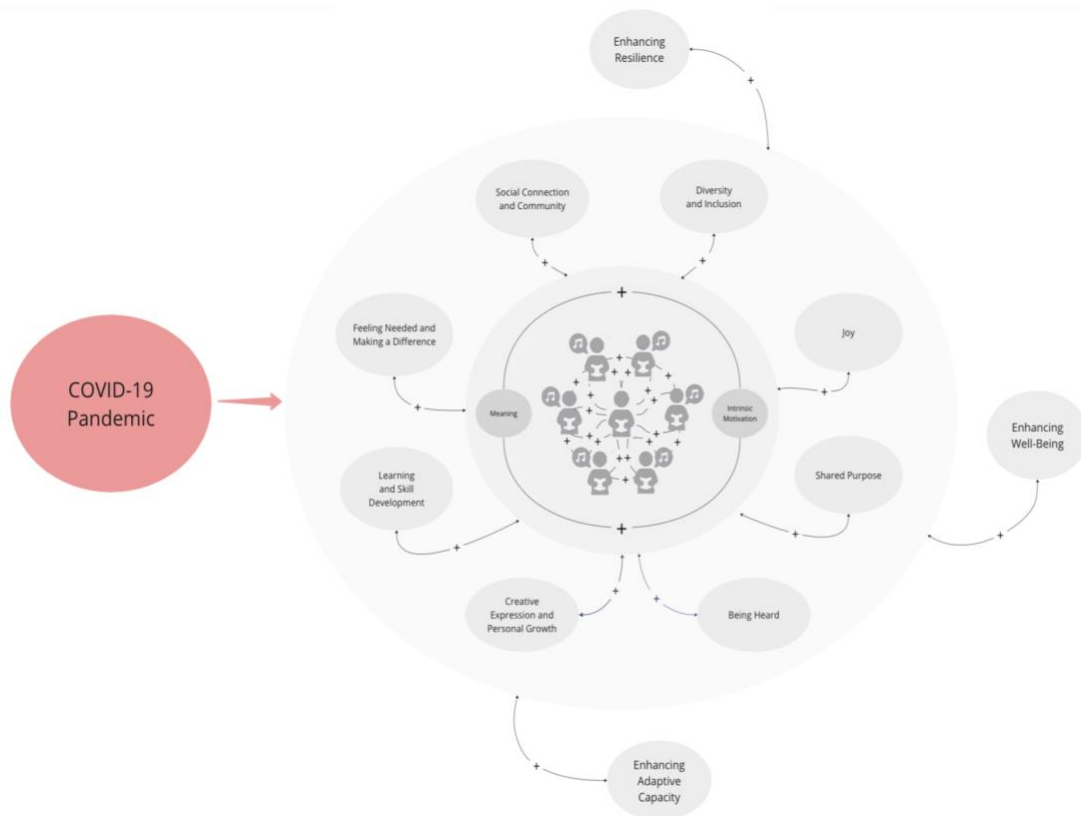


Figure 5. The COVID-19 pandemic as a significant, external challenge to the choir ecosystem.

The COVID-19 pandemic that began in 2020 significantly disrupted the choir ecosystem, particularly threatening three critical aspects: the ability for members to connect socially in person (due to social distancing) and be part of a community, the accessible learning and skill development supported by choir facilitators and physical tools like the songbook, and the shared purpose of gathering to rehearse for a holiday performance. In our interview with the choir organizer, she highlighted the challenges of maintaining an inclusive service during the transition to online formats:

During the pandemic, we had to run the choir virtually. We were trying to accommodate and figure out how to include as many of the people as possible—our long-standing choir members...about 20 to 25 people, all with very different needs

and varying levels of familiarity with virtual platforms. It was a case-by-case process, figuring out how to get each person to be able to join the choir. It was a huge undertaking (Lead facilitator, interview, 2024).

These technological challenges were exacerbated by varying levels of access to technology among adults with intellectual disabilities, which depended significantly on whether members lived independently, in group homes, or with family [19]. Additionally, the choir facilitators themselves often lacked robust technical expertise, adding another layer of complexity to the transition online.

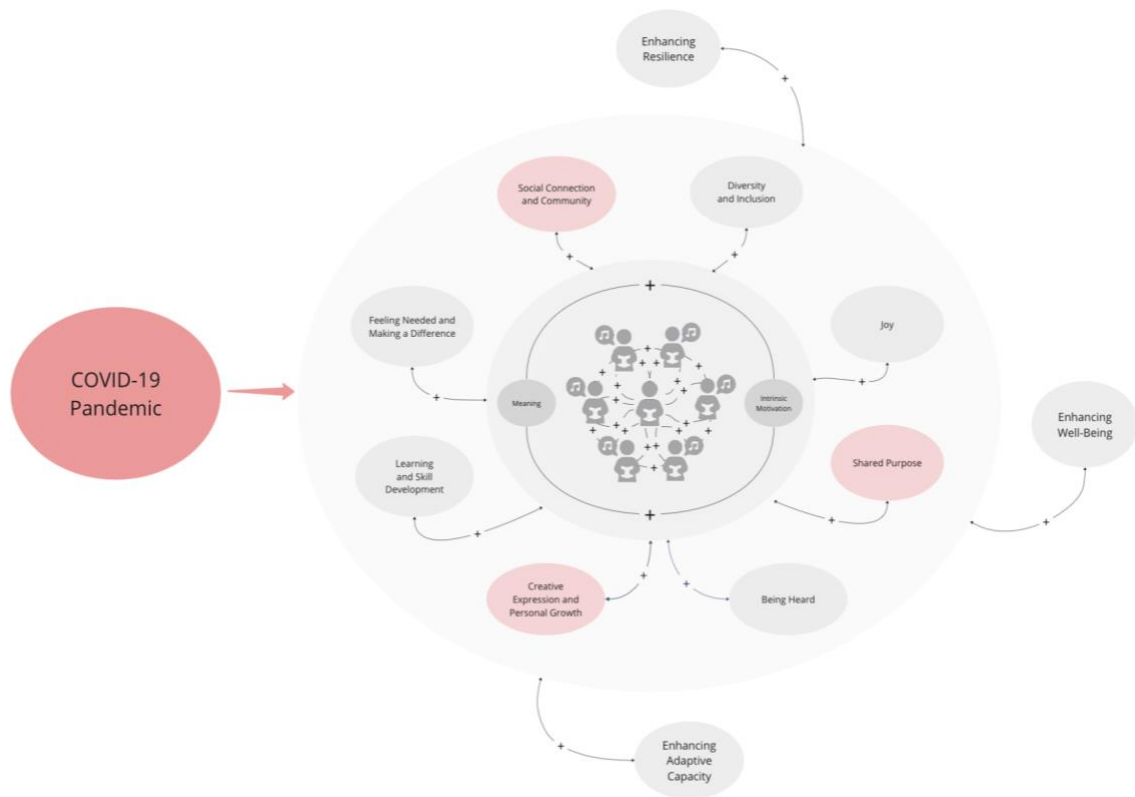


Figure 6. Three meaningful elements: creative expression and personal growth, shared purpose, social connection, and community that were impacted by the pandemic in the choir ecosystem.

Despite these obstacles, the choir maintained its full membership throughout the pandemic—a remarkable feat considering the widespread disruptions across other service sectors in 2020, particularly affecting older adults who experienced heightened social isolation (Statistics Canada, 2021). This was due largely to the choir members’

determination to stay connected and continue singing together. In fact, it was during this disruption that the choir composed its first original song, “Part of the Group,” produced by one of the musicians and inspired by choir members' testimonials about the value of their community. The second verse captures this sentiment:

I love to be in the choir
I love the choir members, supportive and so loving
I mingle with my friends
I love to sing for everybody
Our concert will give some joy this world is missing now
Our voices are gifts to other people
(Symphonic Passion Chorus, 2023)

The collective motivation of the choir members and facilitators to continue participating in this meaningful activity enabled them to effectively navigate the challenges of the pandemic, preserving the well-being effects on individuals and the system as a whole. This success is illustrated in Figure 3. As was stated by a choir facilitator,

...there was just this huge motivation to learn and interact with this technology, through the choir and through my clinical work like caregivers, and everybody was just trying so hard to learn, and practice and trial and error and be receptive to something that I don't think they ever would have even touched prior (Choir facilitator, interview, 2024).

With the pandemic having disrupted the affordances of in-person connection, the ICT-adaptations that emerged to continue supporting the choir leveraged other meaningful qualities in the choir (i.e. being heard, skill development, etc.). In what follows, we will explore how these adaptations facilitated virtual access to the choir, supported hybrid participation, and allowed for learning and performing songs remotely, ensuring that the accessible design that was critical to the choir was not just maintained but adapted to meet new challenges.

Barriers and Interventions Emerging from the COVID-19 Pandemic

This section details the challenges and barriers the choir experienced due to the COVID-19 pandemic and adaptations created in response to them. Each of these adaptations is exemplified through an image, video, or quote from the choir.

Learning Songs Remotely

The transition to remote learning posed several challenges for the choir, as they were unable to use their typical in-person techniques such as tapping members for rhythm, helping turn songbook pages, or positioning members near strong singers. Additionally, members had varying technical abilities to access and follow remote learning resources, and the lack of a real-time feedback loop between the conductor and members made it difficult to provide immediate guidance and support.

To address these challenges, the choir implemented the following adaptations:

1. Pre-recorded video resources with multi-modal learning aids:
 - Conductor demonstrations
 - Displayed lyrics
 - Visual songbooks with pictures and symbols
 - "Bouncing ball" animations for timing
2. Remote learning methods:
 - Call-and-response via video
 - Discussing lyrics and word meanings
 - Providing audio tracks for at-home practice
3. Individualized supports based on need:
 - Caregiver assistance
 - Printed songbook resources
 - Phone tutorials for accessing materials



Figure 7. Preview of Video Songbook of "Silent Night."

By incorporating these adaptations, the choir was able to effectively continue learning songs remotely, ensuring that members had access to the resources and support they needed to participate fully in the choir's activities.

Performing the End-of-Year Concert

The COVID-19 pandemic presented significant challenges for the choir in performing their end-of-year concert. The main issues were the inability to perform songs together in person as a choir and the varying technical capacities of members to participate in recording sessions.

To overcome these obstacles, the choir implemented a systematic remote recording process:

1. Individual recording sessions were scheduled with each member.
2. Members sang along via headphones to audio guide tracks.
3. Separate video files were recorded for each song and member.
4. Two devices were used if needed (one for audio, one for video).
5. Brief interview videos were also recorded.

The choir utilized Microsoft Stream for sharing and editing the recorded files:

1. Recordings were organized with uniform naming conventions.
2. Permissions were set for conductors and editors to access files.

Professional video editing was employed to create the final performance videos:

1. Multi-track recordings were stitched together into cohesive performances.
2. The production effort was considerably more extensive compared to the typical process.

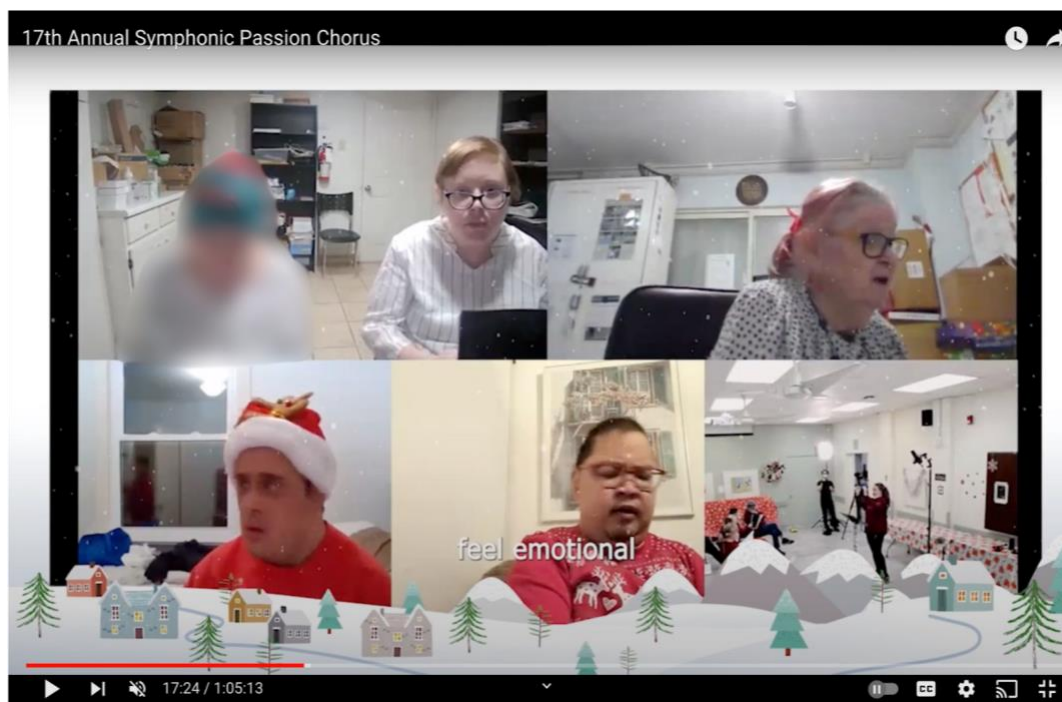


Figure 8. Preview of Choir's Hybrid Rehearsal.

Accessing the Weekly Rehearsals Virtually

The transition to virtual rehearsals presented several challenges for choir members:

1. Many members were unable to independently access and navigate virtual platforms and meeting links.
2. Difficulties arose with operating mute and unmute functions on virtual platforms.
3. Members often lacked familiarity and experience with virtual meeting technology and norms.

As one choir facilitator shared:

Some people found it really frustrating, like one of our choir members, he would get so angry because he didn't understand that we couldn't hear him. So he'd think that we could hear him—he'd be talking and be really excited and animated and telling us something and then asking a question, and then we'd be like, we can't hear you. We can't hear you. Go get Rachel, we can't hear and like he gets so mad. He'd storm off. He'd slam the door; he'd be gone off the screen for like 20 minutes. It was just so heartbreaking (Choir facilitator, interview, 2024).

To address these challenges, the choir implemented the following adaptations:

1. Provided individualized technical support:
 - Created video tutorials on joining and navigating platforms.
 - Pinned meeting links to desktops.
2. Enlisted caregiver assistance to help members join calls.
3. Adopted the Microsoft Teams platform, which allowed conductors to remotely mute and unmute everyone.
4. Recorded videos modeling virtual meeting norms (e.g., demonstrating that participants can't be heard when muted).
5. Had members practice unmuting and muting repeatedly.
6. Allowed some members to stay unmuted despite noise issues if they were unable to learn the muting and unmuting process.

These adaptations helped ensure that all members could access and participate in the virtual rehearsals, fostering a sense of inclusion and maintaining the choir's commitment to accessibility.

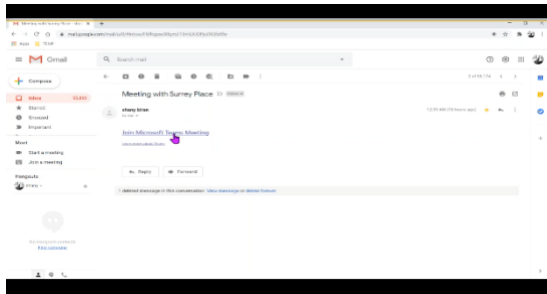


Figure 9. Screenshots from video tutorial on bookmarking Microsoft Teams link on desktop.

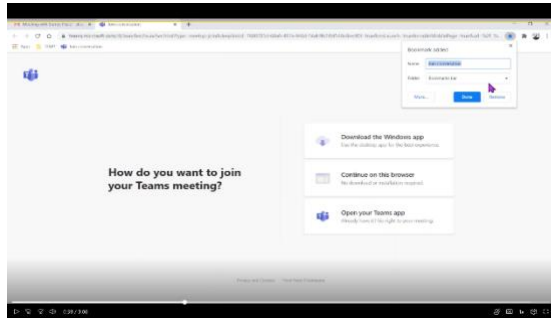


Figure 10. Screenshots from video tutorial on bookmarking Microsoft Teams link on desktop.

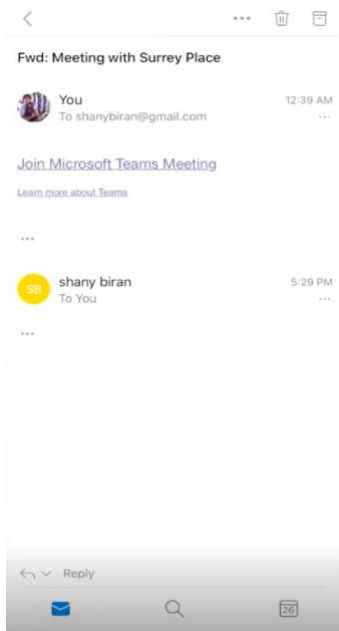


Figure 11. Screenshots from video tutorial on bookmarking Microsoft Teams link on iPhone.

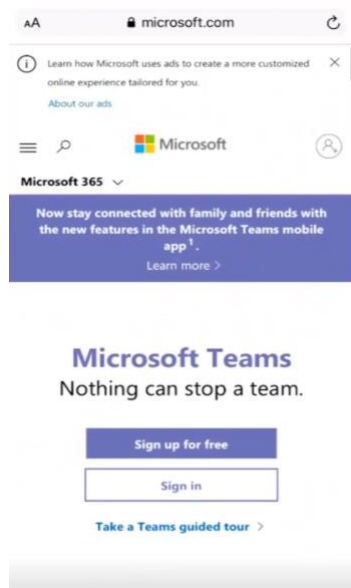


Figure 12. Screenshots from video tutorial on bookmarking Microsoft Teams link on iPhone.

Supporting Hybrid Participation

The choir faced several challenges when attempting to support hybrid participation, which involved integrating both in-person and online participants:

- Complex hardware and software setups were required to accommodate both groups simultaneously.
- Facilitating interaction and connection between the in-person and online participants was difficult.
- Virtual platforms had technical limitations in displaying and managing multiple video feeds.

To address these challenges, the choir implemented the following adaptations:

- Utilized multi-computer setups with dedicated roles:
 - Projected online participants in the rehearsal room.
 - Routed conductor's microphone to be heard online.
 - Positioned cameras to capture in-person singers.
- Rotated "spotlighting" of video feeds between online and in-person participants to ensure equal visibility and engagement.
- Assigned staff members to manage the virtual components of the rehearsal.
- Used a wireless keyboard and mouse to control audio routing and other technical aspects.

By implementing these adaptations, the choir was able to create a more inclusive and engaging experience for all participants, regardless of whether they were attending in-person or online.

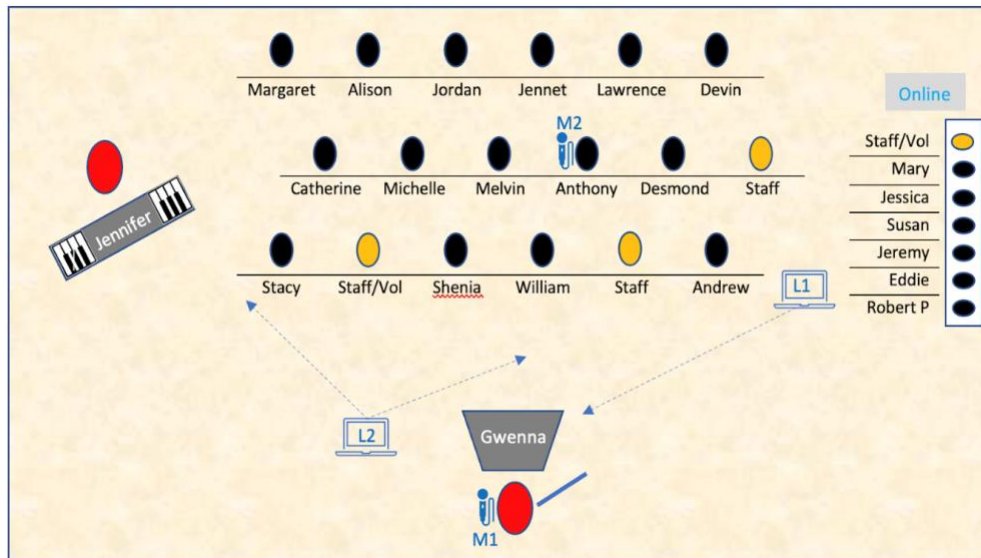


Figure 13. Model for hybrid rehearsal set-up.

Accessing Virtual Performances

The transition to virtual performances presented several challenges for choir members:

1. Many members were unable to independently access and navigate the platforms used for live streaming the final performances, such as Microsoft Teams Live and Eventbrite links.
2. Some members missed their own final virtual concert entirely, despite participating in practice run-throughs.
3. The livestream platforms lacked accessibility features, making it difficult for some members to fully engage with the performances.

A choir facilitator shared their experience:

What was really hard and actually heartbreaking, was when we did the final concert [...] we had so many people, choir members calling us some people in tears. I can't watch the concert. I don't know what to do. And so, we're like in the background trying to produce and present this concert. And then also dealing with people on the

phone at the same time trying to guide them through. And then, like some of them, we never figured out why it wasn't working. Like we just couldn't troubleshoot it and we'd have to be like, we're so sorry. We'll send you the recording afterwards. Like we're just so sorry. People were really upset (Interview, 2024).

To address these challenges, the choir implemented the following adaptations:

1. Provided individualized walk-throughs on how to access livestream links and platforms.
 - Set up a "concert hotline" to troubleshoot access issues in real-time during livestreams.
2. Members could call in, share their screen, and receive step-by-step guidance on joining the livestream.
3. For members who still couldn't access the livestream, the choir put them on speakerphone to participate in reading scripts and announcements live.
4. Provided performers with the ability to view the livestream recording afterwards if they were unable to access it live.
5. Advocated to institutional IT teams for more accessible live streaming solutions.

By implementing these adaptations, the choir demonstrated their commitment to ensuring that all members could access and participate in the virtual performances, despite the technical challenges and limitations of the platforms used.

Summary of Barriers and Interventions

These elements illustrate the choir's remarkable ability to navigate frustrations and challenges, continuously evolving to maintain its activities. As outlined previously, such adaptability enhances the intrinsic motivation of both members and facilitators. Notably, the choir has effectively leveraged elements such as joy, creative expression, and the importance of being heard to sustain its operations, even when other meaningful elements like in-person interactions were diminished.

Moreover, these examples demonstrate how technology can be used purposefully to support the coordination and synchrony that enables the choir to function and enrich the

lives of those involved. In essence, the strategic application of technology enhances the adaptive capacity of the system (Tsasis et al., 20212).

Discussion and Recommendations

The Symphonic Passion Chorus serves as a compelling example of harnessing the power of music and coordinative arts in ways that appear to foster a sense of belonging and purpose for the people involved. This sense of belonging and purpose, in turn, appears to engender enough motivation for the choir community to develop their own ways to adapt to challenges, fostering resilience and inspiring creativity. We propose that the underlying principles and practices driving the choir (outlined below) can provide a foundational model for developing effective, sustainable, and empowering supports to serve the adult IDD population.

Provisional model of the Symphonic Passion Chorus as a complex, adaptive system:

1. **Coordinative Art:** As previously discussed, the choir can be understood as a coordinative art (Brown, 2000), which, as we have demonstrated, has intrinsically motivated and synchronized individuals throughout its history.
2. **Cohesion and Shared Meaning:** The intrinsic motivation and use of coordinative arts have fostered cohesion and coordination among members. This dynamic has not only sustained the choir over time but also facilitated the development of shared meaning, thereby enhancing the choir's intrinsic value.
3. **Desire to Self-Organize:** The synchronization observed among participants has fostered a desire to self-organize, enhancing the choir's adaptive capacity and resilience. This became particularly evident during the challenges posed by the COVID-19 pandemic.
4. **Beneficial Emergent Outcomes:** As a result, a variety of beneficial outcomes emerge, including the development of innovative techniques and application of technology, members gaining confidence to try new activities, and a positive impact on the well-being of both facilitators and members.
5. **Feedback Loop Reinforcement:** These beneficial outcomes further strengthen systemic meaning and motivation and enhance awareness within the system itself.

While these principles have been effective within the Symphonic Passion Chorus, adapting them to different sectors serving adults with IDD—such as speech and language supports, behavioral therapies, and financial and employment supports—may require specific modifications. Particularly, there is a need to explore how traditionally individualistic supports can incorporate coordinative elements. We will address the need for sector-specific adjustments in the implications section.

The insights gained from studying the Symphonic Passion Chorus underscore the need for a paradigm shift in how we conceptualize, and design supports for individuals with IDD. Moving beyond a focus on isolated initiatives or specific interventions, such as making online interfaces more accessible, we propose a more holistic approach. This approach, which we call Meaning-Centered Design (MCD), intertwines intrinsically meaningful activities within the support activities provided by an organization. We offer MCD as a provisional framework of recommendations aimed at identifying and supporting complex adaptive systems, like the choir, that are crucial yet often overlooked within organizations tasked with cultivating well-being. Towards this end, we offer two main recommendations:

1. Embrace Meaning-Centered Design
2. Embed participatory research into service provision

Together these main recommendations form a virtuous cycle that can enhance the impact of service provision and systemic adaptive capacity. In what follows, we delve into specific strategies that can serve as a roadmap for designing supports that enrich the lives of individuals with IDD and in a broader sense, serve as a model for social innovation.

Main Recommendation I: Embrace Meaning-Centered Design

Meaning-Centered Design (MCD) may offer a framework of recommendations for creating supports, systems, and environments that cultivate purpose, belonging, and growth through engagement and participation. By fostering the conditions for meaning, intrinsic motivation, and interconnectedness to emerge, MCD enables systems to develop their own resilience, adaptability, and collective intelligence. This approach recognizes that the most transformative and sustainable design interventions are those that align with the deepest motivations and aspirations of the people involved, and that empower them to find fulfillment through their participation in the designed system.

The Symphonic Passion Chorus case study demonstrates the transformative potential of this approach, showing how a focus on meaning and intrinsic motivation can lead to the emergence of resilient, adaptive, and caring communities. By embracing MCD as a guiding philosophy, service designers can unlock this potential in their own work, creating systems that foster human flourishing and well-being.

Sub-recommendation I.a: Identify and build around passion.

Background—The choir's joyous and coordinative qualities were instilled, sustained and grown by leadership arising from musically enthusiastic clinicians and volunteers. These individuals went above and beyond their formal roles to drive the choir's growth and impact. Strategies to support this include:

- Identify *individuals* who are intrinsically motivated by coordinative activities. Opportunities to discover passionately motivated activities can be created through dialogue, surveys and exploring extracurricular interests. Ensure that design initiatives align with these interests, providing individuals with the autonomy to pursue them effectively.
- Identify *activities* that exhibit meaningful qualities - like supporting creative expression, enabling social connection and enhancing learning - and ensure design supports the enrichment of these qualities. These will often reveal passionate people (as in I.a.).

Sub-recommendation I.b: Expand our view of accessibility to include enrichment of life.

Background—For the choir, accessibility means not just removing barriers, but actively cultivating opportunities for meaningful engagement, creative expression, and social connection. The combination of musical, clinical, and social elements—such as the integration of gesture-based song learning, breathing exercises, and pizza breaks—creates a uniquely accessible and enriching experience, essentially helping people live their best lives. Inspired by this approach, we recommend service designers to:

- Expand accessibility beyond technical requirements to encompass access to purposeful activities, relationships, and growth opportunities. Designers can

implement this by recognizing and leveraging the power of the arts and culture to inclusively engage and intrinsically motivate participation.

Main Recommendation II: Embed structures for participatory research and design.

To support an organization's adaptive capacity, networking, community-building, and knowledge mobilization, embedding structures for participatory research and design within service provision can be advantageous. The Symphonic Passion Chorus exemplifies the potential benefits of such an approach, having demonstrated remarkable adaptability, innovation, and impact on participants throughout its existence. For instance, the adaptive measures implemented during the pandemic could have been beneficial not only within Surrey Place but also externally with other organizations. However, these innovations were not widely adopted or recognized due to the lack of infrastructure to support participatory research and design within the choir. Consequently, the transformative work of the choir was not sufficiently captured, disseminated, or utilized by the broader community. Over time, a lack of awareness regarding the choir's innovative and beneficial activities has led to its misperception as merely 'recreational' or 'community programming' rather than as clinically impactful. This misunderstanding has, unfortunately, contributed to resource cutbacks throughout the choir's history.

By actively incorporating participatory research and consistent co-design into service provision models, we can close a critical feedback loop that enhances service quality and captures valuable insights for broader application. This approach not only improves the services offered but also helps disseminate innovations that can influence other programs and organizations. To achieve this, organizations should foster environments that promote autonomy and flexibility for those involved. Specific strategies for implementing this recommendation are detailed below.

Sub-recommendation II.a: Create structures for internal and external research and design activities.

Background—This research has highlighted the choir's role as a profoundly impactful and meaningful program. Based on this experience, we propose that initiatives like the choir would gain significantly from implementing both internal and external research and design layers, which serve distinct yet interrelated purposes. These layers serve distinct yet

interrelated purposes and could significantly enhance organizational capacity in terms of attitudes, resources, knowledge, and skills necessary for effective research and participatory design. Establishing partnerships can provide the essential agility and flexibility for activities like co-design, as detailed in recommendation II.b. Accordingly, we advise organizations to:

- Create structures to support internal research and design. This can help organizations build a systemic understanding of the needs and preferences within the systems, which bolsters their adaptive capacity and sustainability. Providing resources and tools, as well as learning opportunities for stakeholders to pursue research and design skill development can greatly enhance autonomy, thereby supporting the intrinsic motivation of those involved. Importantly, these activities should be as participatory as possible, involving a broad range of stakeholders, including adults with IDD, to ensure that supports are designed as inclusively as possible and accurately reflect the community's needs.
- Create structures to support external research and design partners and build community engagement. Engaging external researchers can bring fresh perspectives that unveil insights which might remain hidden to insiders, as demonstrated by our examination of the overlooked roles within the choir. Establishing partnerships with academic institutions, design professionals, or other experts can facilitate this process and enhance the breadth and depth of research and design initiatives. By also empowering community members as experts, initiatives can foster a sense of ownership and contribution among all participants, including choir facilitators and members. Collaborations with academic institutions, for instance, allow interested students to gain practical experience that directly addresses real community needs, helping them expand their professional networks and create new work opportunities. This type of engagement enriches the research process and broadens the systemic impact, as knowledge is actively shared and applied across various sectors. Together, these strategies enhance adaptability and innovation that can contribute to a resilient and inclusive design framework.

Sub-recommendation II.b: Invest in ongoing, in-situ co-design.

Background—While sub-recommendation II.a emphasizes the need for external researchers to collaborate with organizations to uncover emergent but previously unrecognized insights, we now shift our focus to the methods and methodologies these researchers might employ. Often, researchers, especially those from academic backgrounds, opt for methods designed for statistical robustness and conducted within controlled environments. These methods are well-suited for testing predefined hypotheses by clearly inferring causes and effects. However, they are less effective for uncovering emergent phenomena, like the choir's development of a 'concert hotline' to address access issues in real-time during pandemic live streams. For this reason, sub-recommendation II.b follows:

- Design and refine supports in the actual environments where they will be used (in-situ), rather than in controlled or hypothetical settings to yield more meaningful and actionable insights. By introducing purposeful interventions and testing them in the context of daily activities, organizations can gain a deeper understanding of what works, what doesn't, and why. This real-world approach allows for rapid prototyping, real-time feedback, and iterative improvement, leading to more responsive and effective services.

Sub-recommendation II.d: Enable knowledge transfer and scaling.

Background—While deeply rooted in its local context, the choir offers transferable lessons about inclusive design, community building, and organizational resilience. Studying and sharing insights from the choir's journey—such as its successful transition to virtual and hybrid formats during the pandemic—can inspire and inform similar initiatives elsewhere. Recognizing this need, we advocate for designers to:

- Support the development of knowledge-sharing platforms to facilitate peer learning and collaboration across organizations developing and delivering similar initiatives.
- Actively seek out opportunities to learn from the choir's experiences, such as conducting research on its virtual participation strategies or documenting its co-design processes. Engage researchers and designers to help capture and disseminate these insights to a broader audience.

Implications, Future Work, and Conclusion

Implications for Social Innovation

The Symphonic Passion Choir's success and longevity offer valuable insights for organizations and communities seeking to drive social innovation and enhance the well-being of adults with intellectual and developmental disabilities (IDD). As Ezio Manzini (2015) argues, collaborative, bottom-up processes empower individuals and communities to participate actively in creating solutions that are deeply rooted in their context. The choir vividly exemplifies this, demonstrating how a system driven by meaningful motivations can evolve into a source of innovation that directly addresses community needs.

To replicate the choir's success, service providers across various sectors could integrate principles of meaning-centered design into their programs. However, as previously outlined, while the recommended design principles were effective for a program like the choir, it's crucial to consider how they might be adapted. This adaptation may involve integrating meaningful, coordinated activities into traditionally individualized supports such as speech and language therapies, behavioral therapies, and financial and employment supports.

For example, speech and language therapies could incorporate group singing exercises that not only target specific communication skills but also foster a sense of belonging and shared purpose among participants. Similarly, financial literacy programs could include team-based budgeting challenges in real-world contexts that promote collaboration and problem-solving while imparting essential skills. By doing so, beneficial outcomes like peer-to-peer support and the development of generalizable skills can emerge.

Furthermore, the choir's ability to navigate the COVID-19 pandemic highlights the importance of cultivating a flexible and adaptive culture. Organizations supporting adults with IDD could draw inspiration from the choir's creative use of technology to maintain social connections and continue engaging activities remotely. By prioritizing adaptability and leveraging emerging technologies, service providers can ensure the continuity of crucial supports and enhance the overall resilience of their communities.

Ultimately, the choir's success underscores the transformative potential of meaning-centered design in driving social innovation. By centering on the intrinsic motivations of individuals with IDD and those providing support, service providers can create more

engaging, impactful, and sustainable programs that foster inclusivity, autonomy, and well-being.

Future Work

Our findings reveal several promising areas for future research that could deepen our understanding of meaning-centered design and its potential applications in supporting adults with intellectual and developmental disabilities (IDD). These emerging avenues have underscored for us as researchers that we are merely beginning to explore the benefits that can be derived from studying meaning-centered and collaborative activities in our local environments. For example, by conceptualizing the choir as a complex adaptive system, we have begun to appreciate the broad impact of its design on overall well-being. Engaging in arts-based activities has been linked to positive outcomes across physical, mental health, and social domains (World Health Organization, 2020; Mastandrea, Fagioli, & Biasi, 2019; UK Government, Department for Digital, Culture, Media & Sport, 2020). Thus, more in-depth investigation is needed to fully understand the impact on participant well-being (including both facilitators and members). Similarly, exploring other community-based arts and cultural activities that could serve as catalysts for well-being is a rich field for future inquiry. Future research efforts could extend to community arts like theater and drama. These efforts should be complemented by the collaborative approaches between research institutions and community initiatives we have recommended.

Further research into the intrinsic motivation of individuals within these systems would also be invaluable. Understanding whether intrinsic motivation can serve as a metric to gauge the success of meaning-centered service design could revolutionize how we assess participant engagement and satisfaction. When participants and facilitators are intrinsically motivated—evidenced by the choir's deep sense of fulfillment and proactive approaches to challenges—it suggests that the system effectively meets their needs and provides a rewarding experience. Developing holistic or naturalistic methods to measure this type of motivation could illuminate how it influences sustained participation, adaptive capacity, and overall success in various programs.

Our research also underscores the potential of emerging technologies to significantly advance supports and services for adults with IDD. For instance, generative AI could be utilized to individualize symbolic representations in choir songbooks thereby enhancing accessibility, learning, engagement, and participation. Moreover, our findings highlight

substantial opportunities for designing services that support virtual and hybrid participation. An interview with an IDD participant from a remote area underscored a pressing need for access to social and meaningful activities that are not available locally. This indicates the potential of technologies like virtual reality (VR) to facilitate forms of participation that bridge geographical and accessibility gaps.

Conclusion

The Symphonic Passion Choir stands as a powerful testament to the transformative potential of meaning-centered design in enhancing the lives of adults with intellectual and developmental disabilities (IDD). Through our exploration of the choir's journey, we have witnessed how a system built around the intrinsic motivations of its participants can foster resilience, adaptability, and profound personal and collective growth.

The choir's success illuminates a path forward for service providers and communities seeking to support the well-being and flourishing of individuals with IDD. By embracing the principles of meaning-centered design—such as centering on passions, expanding notions of accessibility, and empowering community-based experts—organizations can create programs and services that resonate with the deepest needs and desires of those they serve. Moreover, by integrating participatory research and co-design practices into their work, service providers can ensure that their efforts contribute to the evolving needs and aspirations of their communities and to the field of accessibility as a whole.

The choir's journey also highlights the significant role that coordinative arts can play in fostering meaning, connection, and growth. Engaging in activities such as group singing not only provides opportunities for creative expression and skill development but also promotes synchrony and shared meaning making in communities.

Our study of the Symphonic Passion Choir has been a rich and inspiring one. We believe that by further understanding and supporting meaning-centered initiatives like it, we can move towards transformative models for social innovation that can have holistic, positive impact on the communities individuals with IDD are an integral part of.

Limitations

While this study provides valuable insights into the Symphonic Passion Chorus as a model for meaning-centered service design, it is important to acknowledge that, as a qualitative case study focusing on a single organization, the findings may not be directly

generalizable to other contexts or populations. However, the principles and practices identified in this study can serve as a starting point for further research and adaptation in other settings.

Second, the study relied primarily on interviews with key informants and field observations, which may not fully capture the experiences and perspectives of all choir members and stakeholders. Future research could benefit from incorporating more interviews as well as diverse data collection methods, such as surveys and/or co-design sessions, to gather a broader range of viewpoints.

Third, the study's focus on the choir's adaptations during the COVID-19 pandemic may limit the applicability of some findings to non-pandemic contexts. While the choir's resilience and creativity in the face of challenges are noteworthy, the specific strategies employed may not be directly transferable to other situations.

Finally, the long-term impact of participation in the Symphonic Passion Chorus on the well-being and social inclusion of individuals with IDD was not assessed in this study. Longitudinal research designs could help to better understand the enduring effects of engagement in meaning-centered activities and the sustainability of the choir's model over time.

Despite these limitations, the Symphonic Passion Chorus case study offers valuable insights into the design and implementation of inclusive, meaningful supports for individuals with IDD, highlighting the potential for participatory, adaptive, and empowering approaches to enhance the well-being of individuals and communities.

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