School of Population Health

You are welcome and we value you, Guiding the co-design of a revised telepractice delivery model with the disability community: an embedded researcher approach

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Doctor of Philosophy (Public Health)
of
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DECLARATION

To the best of my knowledge and belief this thesis contains no material previously published by any other person except where due acknowledgment has been made. This thesis contains no material which has been accepted for the award of any other degree or diploma in any university.

The research presented and reported in this thesis was conducted in accordance with the National Health and Medical Research Council National Statement on Ethical Conduct in Human Research (2007) – updated March 2014. The proposed research study received human research ethics approval from the Curtin University Human Research Ethics Committee (EC00262), Approval Number HRE2021-0731.

Signature:

Date: 01.02.2024

DEDICATION

Co-design is undoubtedly a team sport, and as a lover of sports I dedicate this thesis to the team of amazing people who lived this experience with me.

ACKNOWLEDGEMENTS

Firstly, I would like to thank all the participants of this study, and particularly the co-designers. Your faith in me, hard work and humour made co-designing with you such an enjoyable and enriching experience, and I am so grateful to each and every one of you.

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ACKNOWDGEMENT OF COUNTRY

We acknowledge that Curtin University works across hundreds of traditional lands and custodial groups in Australia, and with First Nations people around the globe. We wish to pay our deepest respects to their ancestors and members of their communities, past, present, and to their emerging leaders. Our passion and commitment to working with all Australians and peoples from across the world, including our First Nations peoples are at the core of the work we do, reflective of our institutions' values and commitment to our role as leaders in the Reconciliation space in Australia.

ABSTRACT

During the upheaval of the COVID-19 pandemic, academia, government and industry were never better aligned or more cooperative. The translatory gap between research and practice condensed comparative to historical trends, and an appreciation for how research and industry could collaborate towards mutual aims became apparent. This thesis aims to demonstrate the value of embedding research into a provider organisation to facilitate the co-design of a telepractice service delivery model. Its objectives included centring the telepractice knowledge discovery process to the experience and needs of users, co-designing a proposed telepractice service delivery model, and exploring the impact of an embedded researcher and other co-design strategies on the partner organisations, participants, researcher and research outputs. The methods of this thesis align with the principles of community-based participatory-research and worked to co-produce the research project structure, aims and outcomes with the industry partner disability support organisation staff and customers. The Consolidated Framework for Implementation Research was incorporated to support analysis within an implementation specific lens and provide a robust and consistent implementation framework at each stage of the research study.

The project included a scoping review regarding service user and provider experiences of telepractice for clinical therapy in disability. This was followed by a survey of Australian disability support provider organisations, an approach suggested by the project steering committee to better understand how other disability providers implemented telepractice, particularly during the COVID-19 period. Following the information gathering phase, the thesis describes a co-design process set at the industry partner organisation. This included 35 interviews with customers, clinicians and other staff in collaboration with a peer researcher representing people with disability. These interview participants were invited to collaborate in a co-design workshop series including 5 sequential 90-minute workshops where they established goals for future telepractice improvements, a customer journey map of current telepractice experiences and a prototype to test potential ideas to improve the service delivery of telepractice at the industry partner site. Following the testing of the telepractice prototypes, and analysis of the feedback, the co-designers reflected on the key aspects to propose to the partner organisation for improvement and implementation.

The predominant findings of the thesis were that both customers and clinicians view telepractice as a useful adjunct to in-person sessions for therapy service delivery to people with disability, in a hybrid and flexible model tailored to the needs of the individual. The rapid implementation of telepractice during COVID-19 provided an excellent platform for telepractice to enter mainstream provision, however significant improvements are required to improve the sustained integration of

telepractice into regular care. Working from an embedded researcher role in a project which prioritises community-based participatory-research through co-production and co-design provides significantly elevated understanding and collaborative opportunities which better provide fit for purpose research outputs while sharing knowledge to benefit both the industry partner and the academic research team. The findings of the thesis were distributed thoroughly and continuously throughout the study period and included formats such as open access research publications, one page infographic summaries, presentations internally at the industry partner organisation Rocky Bay and externally to the wider academic and disability community, scientific and industry poster presentations, an executive summary provided to the executives and managers of Rocky Bay and most importantly the presence of the researchers onsite throughout the process answering questions and providing evidence based advice. This thesis created the opportunity for telepractice delivery to improve for customers and clinicians at the industry provider, as well as the wider Australian Disability Sector through open access dissemination. It additionally provided a robust methodological blueprint to combine embedded research, peer research, co-design and community based participatory research methodologies to comprehensively integrate research into industry practice in a collaborative and empowering way.

Co-Designing Telepractice within the Disability Sector

Telepractice is a **convenient way** to deliver services via videocall to customers. Telepractice **improves ease of access** for people with a disability. This project partners with members of the disability community to design a **fit for purpose** Telepractice service that enhances choice and flexibility while delivering high quality services.

Design Process

1 Survey the Australian Disability Sectors use of Telepractice

2 Co-design a new Telepractice service model

3 Prototype & Test the Telepractice model with Rocky Bay

4 Gather feedback to improve & expand Telepractice for Implementation

How is this project inclusive?

People with a disability will actively participate in designing the service they use.

Clinicians partnering with clients to develop high quality solutions to deliver care in the best way.

Australian Disability Sector sharing information to collectively improve service quality & sustainability.

Research team includes members with a disability enabling learning & inclusivity.

> “ It saves on travel, it saves on fatigue, you can do it from the comfort of your own home … it is just as good as face to face for us.
>
> Parent of Telepractice Service User

1 in 3 People surveyed who accessed NDIS therapy via videocall during COVID-19 lockdowns said they would keep using telepractice.

(Lawford et al. 2021)

Who to contact to be involved?

Curtin University and Rocky Bay are conducting this project, to find out more or be involved please contact Project Coordinator Cloe Benz cloe.benz@rockybay.org.au or discuss with your Rocky Bay Therapist.

Lawford et al. Participant Experiences with National Disability Insurance Scheme Funded Allied Healthcare Services During COVID-19 Melbourne, Australia: A report prepared by The University of Melbourne in collaboration with the National Disability Insurance Agency with funding from the Melbourne Disability Institute; 2021.

Rocky Bay
HEALTH + COMMUNITY

Curtin University

LIST OF RESEARCH OUTPUTS

Research Papers

Paper 1: Benz C, Norman R, Hendrie D, Welsh M, Huntley M, Robinson S. "Use of Teletherapy for allied health interventions in community-based disability services: A scoping review of user perspectives." Health & Social Care in the Community [https://doi.org/10.1111/hsc.14105]. 2022 [cited 2022/11/13];n/a(n/a) doi:https://doi.org/10.1111/hsc.14105

Paper 2: Benz C, Dantas J, Welsh M, Norman R, Hendrie D, Robinson S. "Telepractice implementation experiences during the COVID-19 pandemic, a qualitative exploration of Australian disability allied health providers: A diamond in the rough." Digital Health. 2023;9:20552076231211283. doi:10.1177/20552076231211283

Paper 3: Benz C, Dantas J, Welsh M, Norman R, Hendrie D, Robinson S. "A qualitative study assessing Allied Health Provider perceptions of telepractice functionality in therapy delivery for people with disability." Health Expectations. 2024;27(1):e13988 doi: https://doi.org/10.1111/hex.13988

Paper 4: Benz C, Scott-Jeffs W, McKercher K.A., Welsh M, Norman R, Hendrie D, Locantro M, Robinson S. "Community-based participatory-research through co-design: supporting collaboration from all sides of disability." Research Involvement and Engagement. 2024;10(1):47. doi:10.1186/s40900-024-00573-3

Paper 5: Benz C, Scott-Jeffs W, Revitt J, Brabon C, Fermanis C, Hawkes M, et al. "Co-designing a telepractice journey map with disability customers and clinicians: Partnering with users to understand challenges from their perspective." Health Expectations. 2023;n/a(n/a) doi: https://doi.org/10.1111/hex.13919

Commentary

Commentary: Benz C. "A bridge between worlds: Embedding research in telepractice co-design with disability community." Learning Health Systems. 2024;n/a(n/a):e10428. doi: https://doi.org/10.1002/lrh2.10428

Conference Paper

Paper 6: Benz C, Welsh M, Norman R, Robinson S, Scott-Jeffs W, McKercher KA, Hendrie, D. "Visualising Findings in the Co-Design of Telepractice for the Disability Community." Stud Health Technol Inform. 2024;310:1519-1521. doi:10.3233/shti231273

Industry White Paper

Co-designed Telepractice: Improvement and Implementation Proposal. Presented to Rocky Bay Executive and Clinical Department Management. Co-authored in collaboration with Telepractice Research Co-designers and project Peer Researcher. 2023.

Protocol Paper

Scoping Review Protocol: Benz C**,** Norman R, Hendrie D, Welsh M, Huntley M, Robinson S. Telepractice Utilisation and Implementation in the Disability Sector: A Scoping Review Protocol. Open Science Framework 2021 [cited 28.09.2021]. Available from: osf.io/m6xw7

Presentations:

2023 Medinfo23 –19th World Congress on Medical and Health Informa􏰀cs – Sydney, Australia - Guest Panellist Session: Empowering the community through co-designed, industry led research partnerships.

2022 Health Services Research Australia & New Zealand Conference – Sydney, Australia- Three Minute Thesis Competition

2022 Curtin Malaysia Digital Health Week
Virtual Guest Speaker
Title: Telehealth and Digital Health Exploring the International and COVID-19 Context

2022 Digital Health Collaborative Research Cooperative – Emerging Researchers in Health Informatics Symposium
Title: A Qualitative exploration of Australian Disability Provider Experiences with Telepractice Implementation during COVID

2021 Curtin University School of Population Health –Telehealth State of Play Workshop – Co-Presenter with Mia Huntley
Title: Telehealth Redesign: A Balancing act of Industry and Academic Needs

Conference Posters

2023 MedInfo23
Category: Academic Poster
Title: Visualising Findings in the Co-Design of Telepractice for the Disability Community
Co-Authors: Benz C, Welsh M, Norman R, Robinson S, Scott-Jeffs W, McKercher KA, Hendrie D.

2023 MedInfo23
Category: Industry Poster
Title: Reflections of working with a Peer Researcher with Lived Experience
Co-Authors: Welsh M & Benz C.

2022 Health Services Research Australia & New Zealand Conference
Winner of Poster of the Day
Category: Academic Poster
Title: Co-designed Telepractice service model implementation in the Australian Disability Sector
Co-Authors:

Infographic Summary Posters

2021 Project Summary
Title: Co-designing Telepractice with the Disability Sector

2022 Paper 1 Summary
Title: A Summary of publications on Telepractice User Experience

2022 Lunch and Learn Professional Development Presentation at Partner Organisation
Title: National Perspectives on Telepractice use during the Pandemic: We asked, so come along and find out.

2023 Protype Testing Survey Results
Title: Co-Designing Telepractice within the Disability Sector - Prototype Testing Survey Results

2023 Paper 2 Summary
Title: Telepractice Research Project - National Perspectives on Telepractice use during the Pandemic

2023 Paper 5 Summary
Title: Telepractice Research Project - The Journey of using Telepractice for Rocky Bay Customers

2024 Paper 3 Summary
Title: Telepractice Research Project - National Perspectives on the Functionality of Telepractice

STATEMENT OF AUTHOR CONTRIBUTION

Published Papers

DETAILS OF THE WORK:

Benz C, Norman R, Hendrie D, Welsh M, Huntley M, Robinson S. Use of Teletherapy for allied health interventions in community-based disability services: A scoping review of user perspectives. Health & Social Care in the Community [https://doi.org/10.1111/hsc.14105]. 2022 [cited 2022/11/13];n/a(n/a) doi :https://doi.org/10.1111/hsc.14105

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Chapter four

STUDENT CONTRIBUTION TO WORK:

Cloe Benz and Mia Huntley liaised with the steering committee and conceived the study and structure of the scoping review. Suzanne Robinson, Delia Hendrie and Richard Norman guided the protocol development. Cloe Benz constructed the search strategy and completed initial and comprehensive database searches. Cloe Benz completed article processing with escalation of queries to Suzanne Robinson, Delia Hendrie, Mai Welsh and Richard Norman. Cloe Benz wrote the first draft of the manuscript. All authors reviewed and edited the manuscript and approved of the final version of the manuscript.

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DETAILS OF THE WORK:

Benz C, Dantas J, Welsh M, Norman R, Hendrie D, Robinson S. “A qualitative study assessing Allied Health Provider perceptions of telepractice functionality in therapy delivery for people with disability.” Health Expectations. 2024;27(1):e13988 doi: https://doi.org/10.1111/hex.13988

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DETAILS OF THE WORK:

Benz C, Scott-Jeffs W, McKercher K.A., Welsh M, Norman R, Hendrie D, Locantro M, Robinson S. “Community-based participatory-research through co-design: supporting collaboration from all sides of disability.” Research Involvement and Engagement. 2024;10(1):47. doi:10.1186/s40900-024-00573-3

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Cloe Benz and Mai Welsh liaised with the steering committee and conceived the study and structure. Suzanne Robinson, Delia Hendrie and Richard Norman guided the protocol development and ethics approval. K.A. Mckercher provided methodological support to the project and subject matter expertise. Cloe Benz and Will Scott-Jeffs completed participant recruitment, facilitation of workshops and data collection. K.A. Mckercher and Cloe Benz ideated the format and content of the article. Matthew Locantro provided industry partner based insights and details for terminology. Cloe Benz completed data analysis and wrote the first draft of the manuscript. All authors reviewed and edited the manuscript and approved of the final version of the manuscript.

DETAILS OF THE WORK: **Benz C**, Scott-Jeffs W, Revitt J, Brabon C, Fermanis C, Hawkes M, et al. Co-designing a telepractice journey map with disability customers and clinicians: Partnering with users to understand challenges from their perspective. Health Expectations. 2023;n/a(n/a) doi:https://doi.org/10.1111/hex.13919
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STUDENT CONTRIBUTION TO WORK: Cloe Benz and Mai Welsh liaised with the steering committee to conceive the study structure, Will Scott-Jeffs and Cloe Benz constructed the initial draft of the interview schedule which was revised by Mai Welsh, Suzanne Robinson, Delia Hendrie and Richard Norman. All of the above contributed to the ethical application and protocol development. Cloe Benz and Will Scott-Jeffs completed the recruitment and data collection as well as the data allocation to the journey map timeline. In their role as co-designers Jerah Revitt, Chloe Brabon, Chloe Fermanis, Samantha Cooper, Catherine Keane, Matthew Locantro, Melanie Hawkes and Robert Dyke completed the data analysis and completion of the journey map visualisation. Cloe Benz wrote the first draft of the manuscript. All authors reviewed and edited the manuscript and approved of the final version of the manuscript.

DETAILS OF THE WORK: **Benz C.** "A bridge between worlds: Embedding research in telepractice co-design with disability community." Learning Health Systems. 2024;n/a(n/a):e10428. doi: https://doi.org/10.1002/lrh2.10428
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Cloe Benz and Will Scott-Jeffs planned, organised and facilitated the focus group sessions, Cloe Benz produced the visual practice artworks for the sessions in consultation with KA McKercher. Mai Welsh, Richard Norman, Suzanne Robinson and Delia Hendrie provided supervision, guidance and editing to the conference submission, and reviewed changes post peer review. All authors reviewed the final manuscript prior to submission and contributed to associated conference poster.

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Appendix eight

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Cloe Benz and Mia Huntley liaised with the steering committee and conceived the study and structure of the scoping review. Suzanne Robinson, Delia Hendrie and Richard Norman guided the protocol development. Cloe Benz constructed the search strategy and completed initial searches. Cloe Benz wrote the first draft of the protocol. All authors reviewed and edited the protocol and approved of the final version of the manuscript.

Student signature: *Removed for confidentiality* Cloe Benz Date: 16.1.24
Co-authors’ signatures are provided below. This constitutes certification that the students’ statements regarding their contribution to each of the works listed above are correct. **Primary Supervisor:** *Removed for confidentiality* Associate Professor Delia Hendrie Date: 24/01/24
Co-Supervisor 1: *Removed for confidentiality* Associate Professor Richard Norman Date: 5/12/23
Co-Supervisor 2: *Removed for confidentiality* Professor Suzanne Robinson Date: 10.1.2024
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COVID IMPACT STATEMENT

The impact of the COVID-19 pandemic on this thesis was significant and present from conception to completion. The original context and impetus for the study was derived from the implementation of telepractice as a consequence of the COVID-19 pandemic. While COVID-19 acted positively in terms of being the catalyst for this thesis to exist, it did continue to provide both opportunities and challenges from February 2021 throughout the completion of the study.

The significant upheaval of clinical practice for providers of disability support services during each subsequent wave of the COVID-19 pandemic resulted in time poor clinicians and other staff, who did not necessarily have the capacity to undertake or prioritise research-based activities. This has potentially impacted the reach and success of the embedded researcher role, comparative to a less turbulent context. Secondly the presence of a series of lockdowns and different restrictions for entering the disability provider locations resulted in extended periods where the embedded researcher role was limited to one singular hub or to interacting via MS teams from home.

The removal of boarder restrictions in Western Australia in March 2022, resulted in an opportunity to produce telepractice resources for the current service, in collaboration with the clinical department managers and marketing team. This initiative and the subsequent spread of COVID-19 throughout Western Australia, is presumed to have significantly increased the knowledge, awareness and experience of telepractice use at the partner organisation sites. This increased awareness and experience increased the number of customers and clinicians who had experience with telepractice and were motivated to participate in research which could potentially improve its design and delivery.

The increased experience with the use of videoconferencing software prompted by the COVID-19 pandemic additionally increased the accessibility of the research activities, as most participants preferred completing meetings and other group sessions virtually. The ability to complete sessions virtually significantly decreased the burden of travel, both for the researcher completing interstate interviews, and for the customers who could attend from home. Another positive of the virtual sessions is the assumption that more participants were able to attend comparative to in-person sessions, this includes both participants who were isolating due to COVID-19 infection and those who were isolating due to increased risk of infection and disease severity.

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LIST OF ABBREVIATIONS AND ACRONYMS

ADII: Australian Digital Inclusion Index

AFA: Ability First Australia

AI: Artificial Intelligence

AUD: Australian Dollar

CBPR: Community-Based Participatory-Research

CFC: Child and Family Health Centre

CFIR: Consolidated Framework for Implementation Research

COREQ: Consolidated Criteria for Reporting Qualitative Research

CRediT: Contributor Role Taxonomy

CRPD: United Nations Convention on the Rights of Persons with Disabilities

ER: Embedded Research/er

GRIPP2: Guidance for Reporting Involvement of Patients and the Public 2 Checklist

HITH: Hospital in the Home

HREC: Human Research Ethics Committee

IYS: Individualise Your Services form

LSES: Lower Socioeconomic Status

MS Teams: Microsoft Teams

NDIA: National Disability Insurance Agency

NDIS: National Disability Insurance Scheme

NHS: National Health Service

NSW: New South Wales

OCD: obsessive-compulsive disorder

PhD: Doctor of Philosophy

PPI: Patient and Public Involvement

PR: Peer Research/er

PRISMA-ScR: Preferred Reporting Items for Systematic Reviews and Meta-Analysis Extension for Scoping Reviews

SRQR: Standards for Reporting Qualitative Research

STEP: Stages Towards Employment Pathways

WA: Western Australia

CHAPTER 1: INTRODUCTION

This chapter introduces the concept of telepractice for delivery of therapy services to people with disability, provides an overview of the research, describes the significance, and the originality of the contribution it will make. The aim and objectives of the thesis are outlined, and explanation of how the research is designed to answer the objectives is provided, with the chapter concluding with a thesis structure outline.

1.1 Research and Real Worlds Collide

Successful research studies, in the medical model of health context, historically hinged on the presence of rigid and well-articulated plans, fastidiously complying with predetermined methods and assumptions of scalability and significance drawn from a calculated sample. Arguably this precedence created research of a high quality, both rigorous and valid in the eyes of peers and praised by the academic community for reaching the summit of the evidence-based pyramid[1]. This pursuit for perfection in the research community created a disconnect with the messy and imperfect landscape of the real world[2]. This disconnect is considered to be the origin of a translation gap between research and practice of up to 17 years[3]. While the number of years is contested, the reality is that this gap is something like a canyon with a small rickety bridge over which few research studies traverse to the world of implementation in clinical practice.

The COVID-19 pandemic caused extensive viral spread, and with it a widespread systemic shock, shifts in societal norms and changes in service delivery precedence[4]. One particularly obvious change was the forced collaboration between previously disparate industries, and the appreciation of academic expertise in guiding and responding to real time issues[5-7]. To return to the canyon metaphor, COVID-19 gathered academic and general communities to the edges of the canyon, providing the impetus to form new, mostly temporary bridges for research to enter and support mainstream society.

Other changes forced by the COVID-19 pandemic included the rapid transition and acceleration towards the widespread use of digital health and virtual care delivery of previously in-person services, to stem the spread of the virus and protect vulnerable populations[8-10]. One such vulnerable population was people with disability, as the increased need for health and disability support service interactions compared to the general populous, coupled with the potential to be more susceptible to the virus created significant concerns[11]. Disability support service providers required alternative methods to remotely deliver supports, to limit the potential risk to their customers with disability, while continuing to provide services. Hence telepractice delivery capabilities were either introduced or rapidly upscaled from small regional and rural models[12]. The roll out of a predominantly new method of service delivery, without prior planning or dedicated expertise in virtual services created a workable short-term solution which was fit for purpose in responding to COVID-19[13]. However, with the significant financial resources invested to actualise the use of telepractice, the question of how to translate this model into a long-term sustainable and scaled method of service delivery to people with disability remained.

The problem of scaling and sustaining the use of telepractice for health and disability support services outside of rural and remote communities had been a topic of investigation for academic researchers over the preceding two decades[14-17]. Despite existing research assessing the effectiveness of telepractice interventions, use of change management theory, and implementation science, the key requirements to consistently progress telepractice from pilot to sustained services remain unknown[18-26].

The research collaboration in this thesis was triggered by the rapid acceleration of telepractice implementation as a result of the COVID-19 pandemic, together with increasing awareness about the capacity of research to address real world problems. The disability support service provider (Rocky Bay) approached an academic institution (Curtin) to work together, with the research collaboration designed to help establish a method of successfully scaling a sustained telepractice delivery model while building a stronger bridge between academic and disability support service providers. This collaboration posed a challenge, how to work within the imperfect realities of the real-world to produce research that meets the needs of the disability support service provider and their customers while abiding by the standards set for high quality evidence.

1.2 Research Problem

1.2.1 TELEPRACTICE SUSTAINABILITY FOR A FUTURE IN DISABILITY

While published articles exist which enumerate the benefits of telepractice, with precedence existing in the safe delivery of clinical services across a wide variety of specialties and interventions[27-33] predominantly in the areas of improving regional and remote access to services. This research has not consistently penetrated mainstream clinical pathways or built demand for telepractice outside of regional outreach[34-37]. To put it simply, the vast majority of people don’t identify value in telepractice services to progress them from pilot projects to scaled sustainably[18]. Available literature from regional outreach services and events of COVID-19 demonstrated that services can successfully be delivered via telepractice[38-41], therefore identification of what factors impact broader access to telepractice and uptake for people with disability is required. This problem being identified by disability service providers who invested significantly in the initial implementation of telepractice during COVID-19 pandemic, motivating them to pose the question to academia as to how research could support them to sustainably improve their telepractice service for the future.

1.2.2 BUILDING A BRIDGE OF KNOWLEDGE SHARING

A request for assistance from a disability service provider to utilise research to improve their telepractice service delivery model, posed the problem of how best to connect organisational needs with research knowledge to improve practice. The research knowledge to practice gap demonstrates that research historically has not consistently succeeded at translating research or producing research which meets user requirements[42].

The disability community specifically has requested on multiple occasions for the inclusion of people with disability, their carers, family networks and service providers in research and innovation concerning services which they access and more broadly[43-46]. These considerations shape research which prioritises meeting the needs of the partner organisation, that directly translates findings into practice and welcomes people with disability to be meaningfully involved in the process. Assuming that no single research method would address these priorities while simultaneously providing quality research, this posed the research problem of what combination of methods would create the most accessible research participation and knowledge?

The goal was to provide a collaborative research study, co-produced with organisational stakeholders and people with disability that through sharing knowledge in a two-way bridge creates meaningful findings and changes to practice for clinicians, customers and organisations accessing telepractice.

1.3 Significance and Originality of the Study

The originality of the presented thesis is based on the intersectionality of the evidence to support combining the methods of embedded research, peer research, co-production and visual practice to co-produce an accessible research study in partnership with people with disability, providers and researchers. The ambitious undertaking of this thesis demonstrated the opportunity to build strong bridges between disability service providers, disability community and researchers during a period of upheaval due to the COVID-19 pandemic. It supported bidirectional information and experience sharing to create fit for purpose research aims and outputs.

The utilisation of visual practice across a wide range of outputs and strategies has created a body of works which not only contributes a high degree of academic rigour, but also a high level of accessibility which invites an expansive and inclusive audience to engage with the findings. The use of analytic metaphor to describe complex academic findings, supporting infographics to summarise extensive text heavy documents and video information with closed captions for participants are only a few of the many ways in which this study strived to be inclusive and as such created a body of evidence which has the opportunity to elevate the understanding of many members of the community outside of academia.

As this thesis was identified as the first to our knowledge on telepractice service delivery across people with disability with no limitation on age or disability type, accessing allied health and other clinical services, it is even more significant to have created an accessible evidence base. The co-designers, through the opportunities provided by this study have had a lasting impact on the direction of the telepractice services provided by the organisation which they work or access services with. Additionally, those co-designers have experienced a high level of accessibility and agency in the manner in which they interacted with the research study which will positively guide their interactions with any future research.

The presented thesis has created a bridge between the academic and industry collaborators which has provided significant bidirectional transference of knowledge and production of an implementation plan to direct the improvement of telepractice on site at the industry partner organisation. It has provided an exemplar of the value of embedded research to the industry partner organisation and demonstrated the benefits of researching the needs of customers and clinicians prior to committing to the implementation or improvement of a novel type of service delivery. The presence of the embedded researcher created the opportunity for translation of research into practice consistently for the entirety of the study period. With the final implementation plan accounting for only a small portion of the true impact of the embedded researcher's presence within the organisation, this study and the embedded researcher role created the opportunity for curiosity, improvement and continuous learning for all involved.

The novel contribution of this study lies in its presence at the intersection of disability, telepractice service delivery and co-design, and provides a significant contribution to demonstrating methods which align with community-based participatory-research to produce a body of work which co-produced high quality inclusive research. The impact exists in creating and publishing methods for future projects to adapt to their context, creating further positive impacts for health and support service users, providers, organisations, policy makers and academics beyond the scope of this study. From a theoretical standpoint the study has looked to highlight the need for differentiation between the concept of community-based participatory-research (CBPR) and patient and public involvement (PPI) and the term co-design. As identified in chapter seven, while other areas of the world are utilising CBPR and PPI to delineate the involvement of users, consumers, customers or stakeholders in the research process, it appears in current Australian based research that co-design is being used to delineate participatory practices and not specifically the process of designing collaboratively. Through the publication of this proposed development in terminology definition and use, this study looks to influence a more accurate use of each of these terms in future research outputs.

1.4 Research Aim and Objectives

The aim of this study was to explore the value of embedding research into a provider organisation to facilitate the co-design of a telepractice service delivery model, through the following objectives:

1. Centring the telepractice knowledge discovery process to the experience and needs of customer, clinician and organisational users.
2. Co-design in partnership with customers and clinicians a proposed telepractice service delivery model.
3. Explore the impact of the embedded researcher and other co-design strategies on the partner organisations, participants, researcher and research outputs.

1.5 Research Overview

A contextualist epistemological position[47, 48] is engaged by the study, which assumes the co-production of meaning by the participants and researchers that cannot be separated. Knowledge is viewed as a contextual representation of truth grounded in participant accounts while acknowledging the role of the researcher[49, 50]. The ontological stance taken by this study is a form of critical realism which assumes a singular reality and retains the concept of truth, however assumes an embedded influence of language and culture in each human experience resulting in multiple perspectives and interpretations of this reality[51].

The study was designed to be community-based participatory-research with the researchers, industry partner staff and customers[52] co-producing the study together. This co-production[53], which encompassed co-planning, co-design, co-evaluation and co-delivery of the project lent itself to use of the co-design model proposed by McKercher[54]. This model described by KA McKercher, included the six steps of Build the Conditions (1), Immerse and Align (2), Discover (3), Design (4), Test and Refine (5), and Implement and Learn (6).

The Consolidated Framework for Implementation Research (CFIR) was incorporated to support analysis within an implementation specific lens and provide a robust and consistent implementation framework at each stage of the research study[55, 56]. The framework additionally provides the opportunity for continued use by the provider organisation at the conclusion of the research study[55, 56]. Reflexive Thematic Analysis[49] was used as the data analysis method to align with goals of drawing patterns across the data set and as it provided flexibility to incorporate an analytical metaphor. Multiple analytic metaphors have been employed to describe findings and improve the accessibility of the academic research for broader audiences, including the disability community[57].

Figure 1, below, describes the high-level structure of the completed study in alignment with the 6 steps of the co-design process by McKercher[54]. The first of the three objectives outlined in the previous section is predominantly addressed in phase one (step 1 and 2 of co-design), the second objective is encompassed in phase two (steps 3 and 4 of co-design) and the third objective is the focus of phase three as the culmination of the project and completion of outputs (steps 5 and 6).

The structure of this thesis is a hybrid of open access journal publications, accessible research outputs and an organisation specific report produced for the partner organisation to implement telepractice. Supporting chapters in the front and back matter of the thesis combine with the research outputs to form a cohesive exploration of the study aim. Chapters of the thesis do not directly align with each component of the project structure and therefore the chapter summaries, which are included following figure 1, describe which components of the overall study structure are included in each chapter.

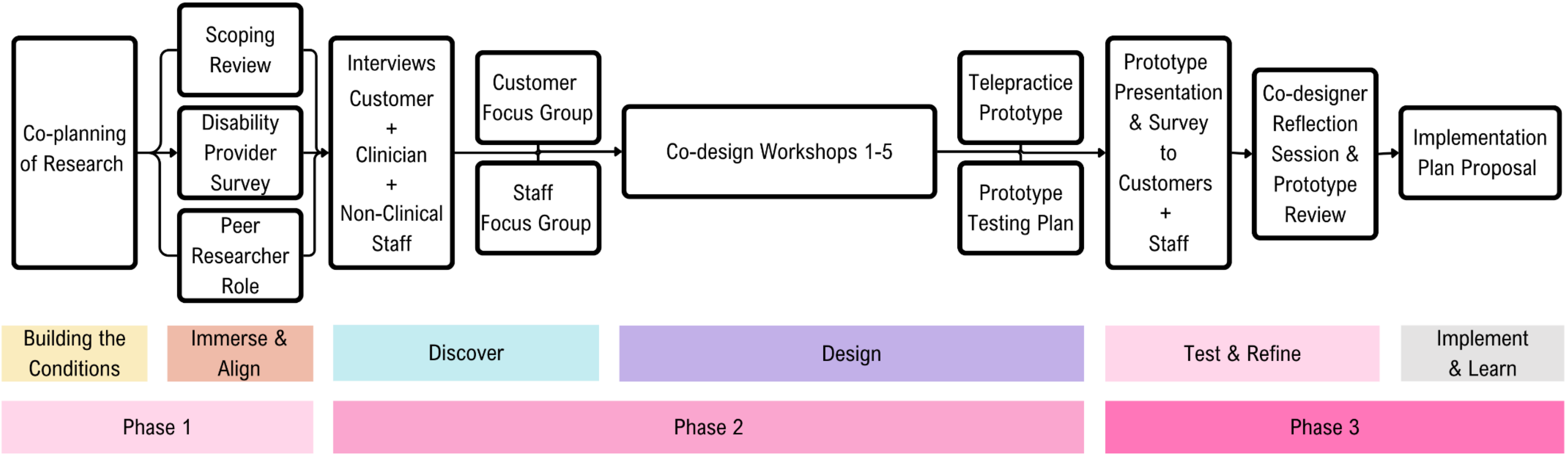


Figure 1: Telepractice Research Study Structure

1.6 Thesis Overview

This thesis includes eleven chapters and the contents of each is outlined below:

Chapter 1 has provided an overview of the context and background of the study, the research problem, significance and originality, and the research aim and objectives that will be addressed in the thesis.

Chapter 2 introduces the key elements of the context in which the study is situated, being the disability support services sector in Australia. The chapter will also clarify the specifics of the type telepractice used, the scope of allied health services and then discuss a brief background to service design and implementation in the disability context. The final component of this chapter is a summary which situates the aim of the study into literature relevant to the background context.

Chapter 3 is a methods chapter which provides a descriptive overview and justification of the methods used across the project, with the aim of providing a cohesive description of all methods. The chapter demonstrates how the project guiding principles, methodology, methods and ethical considerations aligned across the disparate elements of the study and important consideration of language choices and definitions with respect to their use in the study.

Chapter 4 includes the first publication in the thesis, a scoping review providing a synthesis of the existing literature with regards to user experience of allied health interventions via teletherapy for the disability community. It discusses teletherapy as a subset of telepractice which specifically addresses allied health therapy intervention delivery via videocall. The scoping review addresses both organisational requirements and target population considerations specific to the experience of teletherapy delivery, with the aim of identifying key barriers and facilitators for future service design. The main findings of the review indicated that teletherapy is viewed as a complementary service, with a flexible hybrid model valued above exclusive use.

Chapter 5 is the first of two chapters which analyse qualitative interview data collected through a survey of allied health clinicians and managers from disability support service providers in each Australian state. This chapter includes a published paper which describes the impact of the COVID-19 pandemic on the uptake, implementation and sustained use of telepractice. This paper utilised the analytic metaphor of forging a diamond, to describe the pressures experienced by clinicians and managers implementing telepractice during the COVID-19 pandemic. The article endorses the integration of a planned telepractice delivery pathway that capitalises on the momentum created by the COVID-19 pandemic in a purposeful and accessible way that looks to enhance rather than replace current practices.

Chapter 6 is the second of two chapters which analyse a survey of allied health clinicians and managers from disability support service providers in each state. This paper analyses the functionality of telepractice for people with disability; and the influences of the provider/client relationship on the perceived usefulness and subsequent adoption of telepractice. It utilised an analytic metaphor of shopping for a pair of shoes to support findings accessibility with regards to the differences between telepractice and in-person delivery and assessing the fit of telepractice for individuals. The findings indicated that telepractice has strengths and weaknesses and isn't a direct substitute for in-person sessions, like left and right shoes are similar but not the same.

Chapter 7 is a paper which describes in-depth the co-design process, inclusive of the design thinking methods utilised, workshop structure, outputs and activities, as well as reflections from the participants. The paper includes descriptions of how co-creation of the telepractice co-designed journey map and telepractice re-design prototype were completed within the workshop schedule. This paper advocates for the use of community-based participatory research/processes and co-design to generate creative thinking and complete service design.

Chapter 8 is a published paper which presents the method and results of the current telepractice experience journey map produced by customers and clinicians during the co-design workshops. This article is published with co-authorship of eight of the ten co-designers and the peer researcher of the project, demonstrating multi-level collaboration to produce meaningful research outputs. The findings are valuable in the context of advocating for the incorporation of customers and clinicians through co-design workshops in the content analysis and creation of a journey map that is representative of the lived experience of accessing telepractice services.

Chapter 9 includes the implementation proposal presented to the partner disability support service provider for execution of the re-designed telepractice. This document includes partner organisation-oriented information and recommendations through a business lens, while prioritising the co-designers' contribution. The document includes an executive summary, service values which resonated with co-designers, and a recommendations summary table.

Chapter 10 includes a reflective commentary on embedded research within the disability sector in reference to published literature of other experiences, followed by a reflection on the peer researcher role written in collaboration with the peer researcher and industry supervisor.

Chapter 11 concludes the thesis, summarising the key findings and insights in alignment with the research aim and objectives. The chapter outlines the strengths and limitations in the research design and process, while acknowledging the valued input of those who contributed to its co-creation. The thesis concludes with recommendations for future practice, policy and research in co-production with disability community.

1.7 Summary of Chapter 1

This chapter has provided a brief introduction to the concepts of telepractice, the context of disability support service providers and people with disability accessing allied health interventions via telepractice. This chapter then provided an overview of the research problem. It highlighted the significance and original contribution that this study will provide to the field of implementing co-designed research methods and telepractice service design for people with disability.

The next chapter explores key concepts regarding telepractice, service design and implementation, and provides a more extensive background for the context of where and when the study was situated.

CHAPTER 2: BACKGROUND

This Chapter explores key concepts regarding telepractice, service design and implementation. The chapter will commence by providing a more extensive background for the study context within a disability support service provider organisation under the Australian National Disability Insurance Scheme (NDIS), followed by an outline of the link between the COVID-19 pandemic and the introduction of telepractice. The chapter concludes with a description of the value in planned service design and implementation to improve current telepractice for users.

2.1 Disability

People with disability, their network and providers from the disability community are both the focus and guiding voices for this research. The history surrounding disability culture and the inclusion of people with disability in mainstream culture is long, complex and ever changing[58]. Although a minority, people with a disability make up one-fifth of the Australian population (4.4 million people), with Australians on average living approximately one-fifth of their life with a disability. These numbers reflect a democratically stable and economically wealthy country, with the prevalence of disability accounting for a much higher proportion of the population in countries such as those impacted by civil unrest[59].

The World Health Organisation definition of persons with disabilities are those “who have long-term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others”[60]. This social model of disability highlights access barriers as the predominant focus requiring improvement, not the person themselves. Disabling environmental barriers, a concept grounded in the social model, informed the United Nations Convention on the Rights of Persons with Disabilities (CRPD), which aims for full participation and acknowledgment of rights of people with disability[61]. Ratification of the CRPD by countries including Australia aided the momentum of advocacy campaigns aiming to create change and improve support services and conditions for people with disability[46]. The framing of disability as a human rights issue and conceptualisation of community and environmental access as a right[61], has flow on impacts from macro level policy to micro level effects on people’s lives and opportunities, especially in terms of the present cultural push for greater visible and intentional diversity[62].

The valuable contribution of people with disability when provided appropriate opportunities and support, was highlighted by the 2022 Australian of the Year, Dylan Alcott, a disability activist and Paralympian who was the first ever person with disability awarded this role. His acceptance speech amplified calls for greater disability representation in all aspects of society specifically, with this excerpt particularly resonating with the aims of this research[63]:

> "listen to people with lived experience and ask them what they need so they can get out and start living the lives they want to live and remind ourselves that it is an investment in people with disabilities, so they can get off pensions and start paying taxes, just like their carers and their family members as well" Dylan Alcott, Australian of the Year 2022[63].

2.2 Australian National Disability Insurance Scheme

Within the context of the Australian federalised system of government, disability support services are funded federally, in contrast to public health and emergency services which are provided by state-based funding[64]. Reform of disability service funding provision between 2013 and 2020 resulted in the introduction of the National Disability Insurance Scheme, which provides support to Australian residents who are deemed to have a permanent and significant disability[65]. The NDIS was based on principles of co-design with people with disability, community organisations, advocates and governments; and was viewed as the largest social reform since the introduction of Medicare[66]. Implementation of the NDIS commenced 10 years ago and was completed in 2020, with the scheme currently supporting over 610,000 participants[67]. In a shift from previous needs-based funding to rights-based funding[66], a cornerstone policy of the NDIS is choice and control for participants, with funding provided directly to people with disability who select how best to spend funding on services, which assist them reach their goals[68]. The most recent quarterly report of the NDIS described positive perception of the scheme enabling choice and control increasing 10% to 77% for participants aged 15 years and older (2022-2023 target of 75%)[67].

The level of control afforded to participants of the NDIS has varied significantly over the last decade since inception, with debate surrounding scheme costs[69], equity of access and funding, as well as competing priorities often dominating headlines[66]. The current government recently amended the NDIS legislation stating "the NDIS recognises the value of people with a disability in co-designing services and respects the relationships between people with a disability and their families and carers" National Disability Insurance Agency[70, pg 2,]. This demonstrates a marked shift from previous government attempts to standardise and objectify the process of NDIS assessment and funding allocation[66], moving towards the participatory roots of the scheme's design[71]. With the backdrop of constant debate and change, the resultant uncertainty regarding the NDIS causes significant challenges, stress and trauma for people with disability and their family[71]. The challenging dynamic which exists for participants attempting to secure or maintain access to funds creates flow on effects when attempting to utilise the funds through disability support service providers and has the potential to detrimentally impact their perception of services delivered.

2.3 Disability Support Services

Following the allocation of a plan, NDIS recipients can utilise funding allocated for specific purposes at any chosen service provider. Many large, comprehensive not-for-profit disability organisations, which previously existed, have subsequently registered to provide services under the NDIS. Smaller private or not-for-profit businesses also exist often with more specialised offerings such as a singular location, target age (e.g., paediatrics) or therapy discipline (e.g., physiotherapy).

Western Australia (WA), as the study location, is currently home to 52,451 NDIS participants (8.6% of total NDIS participants) comparative to the most populous state in Australia, New South Wales (NSW) which presently has 182,920 NDIS participants (30% of total NDIS participants)[67]. However, within the NDIS quasi-market scheme format, both states have the equivalent of 41 active participants per provider (WA n=1,272 providers vs. NSW n=4,413 providers)[67]. One of these Western Australian providers is Rocky Bay, the partner organisation of the research study.

2.3.1 ROCK BAY

Rocky Bay is a disability support service provider who implemented telepractice in response to the COVID-19 pandemic in an effort to decrease in-person service provision due to the risk of virus transmission. The Rocky Bay General Manager Clinical Services approached the Curtin University Health Sciences faculty to form a working partnership, with the intent of completing this research study into improving how their clinical services department delivered telepractice.

Rocky Bay's 1,119 staff provide services to more than 3,400 customers (FY21-22) across 9 hubs of metropolitan and regional Western Australia. These services include supported accommodation, community, equipment, clinical services, support coordination, training and development[72]. The key departments for the research study include clinical services where the study was based, and the community team which included a Stages towards Employment Pathways (STEP) program supporting the recruitment, and employment of the Peer Researcher, to be discussed further in chapter three (methods)[73].

Rocky Bay is a member of a national reference body of independent not-for-profit organisations, under the NDIS, referred to as Ability First Australia (AFA)[74]. This reference body includes 14 separate disability specific service providers across Australia. Rocky Bay's membership to the AFA provided access to organisations around Australia which were utilised for the survey of Australian disability support service providers described in chapters five and six of the thesis.

2.3.2 ALLIED HEALTH AND CLINICAL SERVICES

Rocky Bay clinical services was the setting of the study, with the embedded researcher (discussed in chapter three), based within the department. The structure of the department included the General Manger who acted as project sponsor, Clinical Regional Managers North and South (of the Swan River in Perth, WA), who oversaw all hubs in their geographical remit, and an Allied Health team specific to each hub managed by Clinical Operations Managers. The allied health teams for each hub included clinicians across occupational therapy, physiotherapy and speech pathology. Specialist Teams which span across larger geographical areas included Nursing, Assistive Technology (including behaviour support and dietetics), Equipment and Support Coordination, each led by a Clinical Operations Manager respectively. The Clinical Services Department includes approximately 240 staff, which incorporates the above service providers, as well as administrative support and scheduling. The Manager of Special Projects and Innovation who reported to the General Manager and led quality improvement projects within the clinical services department, acted as the primary collaborative link with the embedded researcher and led project engagement from Rocky Bay.

2.4 COVID-19 Impacts on Disability Support Services

As previously discussed, the COVID-19 pandemic created widespread and long-lasting impacts, including severe implications for people with disability. The vulnerability of people with disability, linked predominantly to their increased requirements for physical contact with support services and potential underlying health conditions, caused significant fear of receiving substandard care[11]. Fears of exclusion were exacerbated by debates surrounding rationing of lifesaving medical equipment, during which people with disability were perceived as less worthy due to inaccurate assumptions regarding their quality of life[75]. In countries where the acute healthcare systems reached capacity such as the National Health Service (NHS) in the United Kingdom, guidelines were implemented which included a frailty index (intended for dementia care). The guidelines created criteria to access critical care respiratory support, frequently excluding people with disability[76]. While those guidelines were repealed as being discriminatory, ongoing audits of critical care in England reported decreased likelihood of access to advanced respiratory support and increased likelihood of death in those who required assistance for activities of daily living[76].

During the COVID-19 pandemic, a landscape of fear and uncertainly further exacerbated real and anticipated barriers, biases and discrimination against people with disability resulting in increased isolation and decreased quality of life[75]. Within this context, the ability for disability support service providers to continue to engage with their customers and support their needs in a safe and lower risk approach was critical. In Australia, the Federalised system of government meant funding and responsibilities for public and social services are split between different levels, including public health and emergency responses (state) and disability support services (federal) [64]. Each state in Australia experienced the progression of COVID-19 in vastly different ways, including Victoria where the capital city Melbourne spent the longest period of time in lockdown worldwide (n=290 days)[77], compared to Western Australia with 12 days in lockdown but two years of extensive domestic border restrictions[78]. The number of days spent in public health mandated lockdowns for the remaining states included New South Wales (n=107)[79], Queensland (n=17)[80, 81], South Australia (n=13)[82, 83], and Tasmania (n=3) [84], which limited in-person service delivery. The division of responsibility combined with the diverse geographical and population characteristics of each state, uniquely positions Australia as a national case study of within country differences to managing telepractice implementation during the COVID-19 pandemic [85].

2.5 Telepractice and Virtual Care Delivery

Telepractice is the delivery of services via digital communication technology by clinicians to a client or carer, for the purposes of intervention, assessment, education or support[86]. The justification for selecting the term telepractice in preference to alternate nomenclature such as teletherapy or telehealth is discussed in section 3.2 of the methods chapter (Co-designed Language Choices). The use of telepractice and other forms of virtual care delivery was well established in Australia and internationally to provide services to people who live rurally for decades prior to the onset of the COVID-19 pandemic[87-91]. However, the acceleration telepractice use to deliver services caused by COVID-19 included the expansion into the previously unexplored areas of metropolitan disability support service provision[13, 36].

The rapid escalation of telepractice and other virtual services in health and disability created significant up and downstream implications and required secure integration of data and electronic medical record capabilities to support providing integrated services at a distance[92, 93]. Virtual care has become synonymous with both asynchronous (store and forward) and synchronous (real-time) service provision via videocall and phone which may include consultation, assessment or intervention-based services[94]. The market has expanded rapidly to include exclusively tele-based service providers who can provide services without geographical boundary, a significant advantage in accessing people across Australia, the fourth least densely populated country in the world[95].

Increased access to services, particularly for people with disability has occurred because of this rapid expansion of telepractice. However, challenges have occurred due to a lack of standardisation of telepractice across difference health, primary care and disability providers causing users to access multiple platforms and service models. This inconsistent expansion is undoubtedly inconvenient for users, yet it has also inadvertently created more informed consumers. Additionally, technological innovation does not remain stagnant, with progression past telepractice to the advent of virtual reality and artificial intelligence (AI) assisted services appearing every more likely. This appears likely to further broadening the digital divide of those who lack the required support to access current virtual services[96].

The first annual report of Australia's Disability Strategy 2021-31 Outcomes Framework included indicators regarding current levels of digital inclusion for people with disability in Australia, using the Australian Digital Inclusion Index (ADII)[97]. In 2021, the ADII for people with disability was 62/100, nine points lower than the score for the total population (I.e. 71), but improving year on year from the 2020 ADII rating of 13 points behind the total population (55 compared to 68)[97]. Regarding demographics, females with disability scored closer to the total population than their male counterparts (5 point difference vs. 14 point difference respectively). In terms of age, the youngest cohort (18-44yrs) was only 4 points down, while the 45-54 and 55-64 age cohorts had more than double the difference (8.9 and 8.6 respectively). The oldest cohort (75 and over) demonstrated the most significant disadvantage, however this was consistent with the total population, with people with disability only scoring 0.3 below their peers. The 32-point difference to the youngest cohort was considered to be linked to age based digital exclusion. These measures indicate the need for targeted and flexible service design to respond to differing levels of digital inclusion, with age and gender as factors.

The demonstrated digital disadvantage of people with disability is an important consideration in terms of potential equity of access, and access improvement initiatives of service delivery models such as telepractice. Telepractice delivery models have been proven to enable delivery of effective and safe allied health therapy interventions[91], and have the potential to improve equity of access for people with disability[98]. However, telepractice models still require significant improvement in service design and implementation in collaboration with users with disability to appropriately cater to their needs[11].

2.6 Service Design for Implementation

Following the move towards a social model of disability which assumes environmental barriers cause disability for a subset of people in society, user-centred strength-based approaches to design have become more prominent[99, 100]. As prompted by the UN CRPD, universal design principles of accessibility for urban and virtual environments are now commonly assumed as human rights and democratic values[61].

Concurrent to the evolution of disability thinking, and the conception of universal design, was the decoupling of design from physical environment specialities such as Industrial Design and Architecture causing recognition of its application to infinite problem spaces[101]. These design thinking processes such as Human Centred Design focus on planning for a future and working backwards to reach it from the present[101]. Publications such as Wahlin and Blomkamp[102] demonstrate the use of design thinking as a research methodology with an example in the development of local government cultural plans. They refer to a methodological bricolage used to respond to the uncertainty and complexity of partnering with users; and argue that iterative methodological choices guided by supporting literature was the 'best operative' to construct the research practice[103, 104].

Design thinking may be used to address social barriers currently limiting people with disabilities' access to services via telepractice and create services which meet user needs and empower greater engagement for long-term sustained use. Critical to the success of such a process is the meaningful and intentional inclusion of people with disability and their care networks in the completion of the service design process.

2.7 Study Aim and Background Context

Increasingly precedence exists for the contribution of people with disability within policy, research and knowledge production through valuing their lived experience expertise[105]. Building on this precedence is a growing consensus that engaging people in decision making processes which affect them is a good idea[106]. Participatory design practices such as co-design aim to improve equity and the democratisation of decision-making processes and design, with the development of such practices remaining an ongoing process rather than a settled outcome[107]. By engaging people with disability as active partners who have the right to make decisions regarding services they access, there exists the opportunity to uphold their dignity[108] and better understand how to create services which fit their needs[107].

Evidence presented by Davies and Butler[106] indicated that people with disability are presently being recruited into peer roles which incorporate utilising their lived experience into co-design projects. Additionally Chapman et al[108] emphasise the need for adaptable, flexible services which are co-designed in partnership with people with disability. Therefore, this study aims to use inclusive participatory methods and provide agency as decision-makers to people with disability, an infrequent but much needed occurrence identified by Chapman et al[108], further unique in the context of being embedded within the organisation which provides the services. This embedded context incorporates the organisational constraints of resource limitation and can facilitate realistic expectations of potential service improvement options[108]. Through an embedded researcher this study aims to create knowledge on the ground, relevant to the local context and jointly owned through co-production with both people with disability, clinicians and the partner provider[109]. Thus, the aim of this study, as outlined in the introduction was formulated to demonstrate the value of embedded research into a provider organisation to facilitate the co-design of a telepractice delivery model. With the objectives further clarifying the importance of centring the study on the needs and experiences of the customers and clinicians of the partner disability support service provider.

2.8 Chapter Summary

The background chapter endeavoured to provide a foundation for understanding the context of the study within a disability provider under the Australian NDIS, during the COVID-19 pandemic and described key concepts relating to telepractice and service design. It subsequently situated the aim of the study within the relevant literature regarding the need for people with disability to utilise their lived experience to have the opportunity to improve the services they access, the importance of embedding research into the real world and desire for co-design. As key components of the current study, embedded research and co-design feature in the next chapter which explores the methods which were used in providing people with disability and clinicians an opportunity to co-produce an improved iteration of telepractice for Rocky Bay as the partner organisation.

CHAPTER 3 METHODS

This current chapter will elaborate on the principles of community-based participatory-research and co-design to which the study aligns through a bricolage of design and research methods. It subsequently explores the concepts of the embedded researcher which includes a personal narrative to position myself as the PhD candidate who completed the embedded research role, and additionally explores the inclusion of a peer researcher as a representative of the disability community in the research team. The chapter then provides an in-depth overview of the methods used to conduct the co-design and finally summarises all frameworks and guidelines utilised in the study method. These methods are employed with the intent of enabling meaningful and intentional inclusion of people with disability, their care networks, and service providers in the study from conception to completion and were viewed as vital to the contribution of the study as a body of knowledge. Therefore, every effort has been made to guide the reader through each step of the process, in combination with further methods-based discussion and evaluation in subsequent chapters and appendices.

3.1 Community-Based Participation and Co-Production

Community-based participatory-research endeavours to promote “a collaborative approach that equitably involves community members, organisational representatives and researchers in all aspects of the research process”[52], page 1. This approach originated in public health research and claims to empower all participants to have a stake in project success. It aims to facilitate more active integration of research into practice and decrease the knowledge to practice gap[52]. Through equitable collaboration, which is frequently referred to as patient and public involvement (PPI), the likelihood of research focus and clinical problems aligning increases, which is increasingly expected by research funders and health systems[110]. In the context of this study, the use of the term community refers to all people who identify as a member of the disability community including people with disability, carers, support workers, advocates, clinicians and providers.

As CBPR is an overarching approach, it requires a congruent method such as co-production to achieve its aims. Co-production has been attributed to the work of Ostrom et al[111], with the term co-design falling under the co-production umbrella; although co-design can be traced back to the participatory design movement[112]. The term co-production in the context of this thesis is intended to be inclusive of co-planning, co-design, co-delivery and co-evaluation of the research process and outputs[53]. To enable meaningful and intentional inclusion of people with disability and their care networks, the methodological bricolage of this study was guided by the principles of co-design of sharing power, prioritising relationships, using participatory means and building capacity[54]. Within this framework, the concept of co-design delineates the collaborative process of creating and thinking to design an output[113].

The importance of community-based participatory-research, co-production and co-design stem from the opportunity to give agency as decision-makers[108] to those who will use, provide and lead the service into the future. Greater engagement and equity, ownership and integration of evidence into practice can lead to the translation of research into positive sustained practice changes[42]. These concepts are discussed further in-depth within the published methodology case study in chapter seven of the thesis.

3.2 Co-designed Language Choices

From the outset, decisions were aligned to the principles of co-design including the initial decisions of co-designing the selection of language for the study. Language is acknowledged as a powerful way to impact relationships, and consciously choosing language which represents people in a way that values their strength and personhood is essential[53]. It is important to use language which creates safe and inclusive environments and ensures basic courtesy through asking individual preferences[54].

The project steering committee considered three terms - telehealth, teletherapy, and telepractice - for the target virtual service. Each term has different connotations, and the group discussed the pros and cons of each option. Telehealth was eliminated due to its association with healthcare and not aligning with the social model of disability. Teletherapy was initially used by Rocky Bay when they implemented the COVID-19 version, but its scope was limited. The final choice was telepractice, which encompassed various fields, including early intervention, education, and therapeutic support. It is a broad and inclusive term in the literature of Occupational Therapy[91], Speech Pathology[114], and Disability Education support[115], and is often framed as an opportunity for a more equitable distribution of healthcare and social interventions.

As a note for the remainder of the thesis, while telepractice was selected by Rocky Bay for use specific to the re-designed service, the use of alternate terms such as teletherapy and telehealth were included in the study outputs when relevant in participant response data and scoping of the literature, to accurately represent the source material. For example, the scoping review in chapter four uses the term teletherapy to delineate the inclusion of only allied health specific literature in the analysis.

The second participatory choice of language related to the use of person first over identity first language regarding disability. Within the constant evolution of disability culture and language preferences, currently person first and identity first language are used by sections of the disability community in Australia and internationally[116]. Person first language preferences the personhood over the disability in deference to a long history of dehumanisation of people with disability. Whereas identity first language seeks to reclaim the language of disability and indicates an identity category which enables membership of a wider cultural group[116]. Strong preferences can be held in favour of either alternative, and published language guidelines recommend asking preferences as was completed with each participant of the study. In terms of written publications and other outputs including this thesis, preference was given to the perspective of the peer researcher who worked within the study, who elected to use person first language. Each publication includes a disclaimer which acknowledges the right of individuals with disabilities to choose their preferred language.

To ensure inclusive language, the team used appropriate pronouns and gender markers, and recognized people with disability and their families as those with lived experience. Any people with lived experience were viewed as expert knowers of their experiences and their disability, which was continually affirmed as equal to any professional knowledge or experience through the language of the study[117].

3.3 Embedded Researcher

In the introductory chapter, one of the posed research problems was the presence of a knowledge to practice gap[42], likened to a metaphorical canyon, with limited opportunities to bridge the gap. This problem of a gap which needs bridging is proposed by the study aim and objective three to have a potential resolution through an embedded researcher model. An embedded researcher is defined as “those who work inside host organisations as members of staff, while also maintaining an affiliation with an academic institution” Reen et al[118]page 1, and they may be contractually employed by either organisation. Embedded research often aligns with the co-production of research, a component of the present study as mentioned in section 3.1, with the co-production enabled by the embedded researcher becoming a core member of the organisation and gaining contextual information which produces outputs more closely aligned to the needs of the host[118].

Embedded research practicalities include undergoing a period of immersion which was completed in this context at Rocky Bay[118]. This process included learning organisation specific processes, gaining access to programs and integrating through meet and greet opportunities. The integration of the embedded researcher provided the opportunity for them to learn organisation specific information, and for them to share research related knowledge to staff[119]. Throughout the co-production of the study the embedded researcher had the opportunity to increase awareness for customers and carers of what research may involve and how they can affect change in services through research participation.

A narrative literature review of embedded researcher publications by Vindrola-Padros et al[109] indicated that while this role utilises the skills of a knowledge broker and boundary spanner, it prioritises producing jointly owned research in collaboration with the host organisation. Key characteristics of embedded research include the building and utilisation of emotional capital[120] and assuming roles such as the critical friend[121, 122] to facilitate study completion. The role inhabits a place of in-betweenness which facilitates bidirectional information transfer which enables tacit knowledge collection and building organisational research capacity[122]. Co-production of research which is facilitated by an embedded researcher enables for thorough and continuous dissemination of research findings and outputs which has the potential to change practice incrementally[122]. Additionally, through the embedded nature of the role the dissemination can be produced to fit the needs of the audience which improves equitable accessibility of the research, for example in this study publishing exclusively in an open access format and participant information as videos[123]. Translation of findings, documents and data into appropriate formats for academic, provider and disability community audiences, often required triplicating outputs, as demonstrated throughout the thesis including academic journal publications, infographics and business reports.

3.4 Personal Narrative

This next section will be written in the first person, to give space and reflect on why I as the writer of this thesis and the embedded researcher of this project came to be in these positions. Lived experience was a key element of this study and therefore the ideal candidate is someone such as myself who has walked on both sides of the gap to create the bridge between the worlds of academia and clinical practice.

Upon reflection experiences from my childhood impacted my career path, including frequent visits to the physiotherapist to seek care for severe hypermobility. This experience on the user side of therapy services, influenced my choice to pursue a career in physiotherapy with the dream of working with young people such as myself. While gaining an Undergraduate Degree in Physiotherapy, I received the diagnosis of Hypermobile Ehlers Danlos Syndrome, a genetic condition which was invariably the cause of my frequent physiotherapy visits as a child. A point to note, that while I acknowledge this diagnosis of a lifelong chronic condition as an impactful consideration in this personal narrative, I do not identify as a person with disability. However, others with this condition do so, as is their choice.

In the final year of my physiotherapy degree, I completed two placements at different children's hospitals in New South Wales, Australia which further cemented my desire to work with children and their families. Following completion of my undergraduate degree, I was offered a new graduate position in a small regional teaching hospital (Lithgow Hospital, NSW). During my tenure the paediatric physiotherapist supported my upskilling into her role prior to commencing maternity leave. This role was generalist in nature and during this period included the NDIS roll out, resulting in frequent consultations with the new National Disability Insurance Agency (NDIA) staff and supporting the families access services through the scheme. This upskilling and acting paediatric physiotherapist role enabled me to transition to short term contract positions within two children's hospitals, before finally acquiring the role of Hospital in the Home (HITH) Physiotherapist at Children's Hospital Westmead.

My role as Physiotherapist for HITH subsequently progressed to Senior Physiotherapist and included responsibility for management and staffing of the service, and upon reflection was an extremely impactful period of my career. I learnt the value of time spent at home, with family and at school, something often taken for granted. That is until you appreciate the time lost by hospitalised children with life limiting conditions, and the importance of accessing services at or closer to home. The rapid increase in population growth in Sydney, particularly western Sydney where the hospital resided, created the need for urban sprawl and high-density residences. The local health district in which Westmead Children's Hospital is situated was projected to have a 75.2% increase in population in the 25-year period from 2011 to 2036. This created demand that healthcare services were unable to supply, forcing an increased reliance on HITH to provide care remotely. These factors gave me an appreciation for the impact of service design and delivery and motivated the decision to volunteer as a pilot team for the telehealth roll out, which was in its infancy across the Sydney Children's Hospital Network sites. The telehealth rollout was so new in 2017, a colleague and I were upskilled on the videocall program directly by the provider and I was given administrative access to support onboarding other HITH physiotherapy staff. Implementation of the HITH delivery of telehealth occurred following approval from the appropriate medical team who required the service to be assessed for effectiveness comparative to standard care prior to approval for ongoing use. As a clinician I had limited experience in conducting research, however I was self-aware enough to know this could have a significant impact on the success or failure of telehealth for the kids and families who would benefit most. Therefore, I enrolled in a masters degree by research to ensure I gained the appropriate support to complete a methodologically sound and rigorous enough research study that the findings would be viewed on their merit rather than any perceived flaws of the protocol.

The HITH telehealth service was based on a hybrid model used to complement in-person services and increase the ability of the service to provide bi-daily treatments to children in their homes as well as telehealth exclusive services for patients who were initially on site at the hospital and subsequently returned home to regional or rural areas. Upon completion and publication of this research, the HITH telehealth service continued to sustainably provide physiotherapy services as originally designed, including following my departure, and I have since learnt during the height of the COVID-19 pandemic. The process of researching telehealth for HITH provided me with a multitude of learnings, including the importance of research answering real world problems or questions, the usefulness of telehealth as a complementary delivery mode when the situation doesn't lend itself to in-person interaction, and the need for services which are designed robustly in a user centric format for sustained long term use.

The resolution of the HITH Telepractice Research project occurred at the end of 2019, with my personal life journey taking me across the country to live and work in Perth, Western Australia. This journey happened to occur scarcely one month prior to the COVID-19 pandemic, when the world of telehealth exploded into every hospital, clinic, and disability provider space. Through connections between telehealth advisory contacts in NSW and Researchers at Curtin, I was provided the opportunity to continue telehealth research as a PhD candidate on several different projects. Which brings me to embedded research, and the present study which resonated with me, I believe due to my lived experience in providing therapy via telehealth and understanding the need for research to support the creation of strong robust services delivered to meet user needs. Fortuitously the nature of my personal lived experience enabled me to appreciate the process of designing the service, the need for flexibility and individualisation to meet the needs of users with telehealth.

While this personal narrative may provide an impression of the perfect fit between embedded researcher and project, I would note my relative lack of exposure to the NDIS or any kind of disability support services outside of the processes of referral from Acute Health settings. I believe this lack of familiarity, while challenging at times, enabled relatively limited preconceived ideas of disability support service organisations and processes, allowing for genuine curiosity and fresh eyes to the posed problem. The position of novice can be as valuable as the position of expert, especially when it enables you to ask genuine questions of people, learn from their valuable information and give them a sense of value.

Concluding this personal narrative, I believe a key component to the success of the study and my role as embedded researcher was the opportunity to share knowledge built from experience and learn from other experiences, which I will elaborate on further in a subsequent reflection of the embedded researcher role in chapter ten.

3.5 Co-Planning and the Telepractice Steering Committee

Co-planning of the Telepractice Research Study involved immersion at Rocky Bay as the host organisation, including meeting relevant stakeholders to form a steering committee which guided project design and structure. Members of the steering committee included:

Project sponsor as the committee chair,
Customer Representative a carer of a young person who is a wheelchair user,
Manager Clinical Services,
Manager Special Projects and Innovation,
Manager of Business Transformation and Development
Three clinician representatives which included an advanced clinician, mid-career clinician and a new graduate across disciplines.

A highly important aspect of the Telepractice Steering Committee was the prioritisation of relationships and building of trust between the customer representative, research and provider committee members. This was the first committee at Rocky Bay with customer representation. These small steps towards inclusion for people with disability and their network, are important to ensure an understanding of their experience.

The Telepractice Steering Committee selected the term telepractice, discussed current knowledge, perceptions, and aspirations for the research objectives using a series of prompt questions which are included in Appendix 1. They approved co-design as the research method and recommended surveying other disability organizations on their telehealth experiences. Additionally, the committee selected the salient constructs of the Consolidated Framework for Implementation Research[55], to prioritise the focus of the implementation lens of the research. The framework will be further described in section 3.9 of this chapter.

Figure 1: Artwork depicting life pressures of Customer Representative's daughter

3.6 Peer Researcher

Peer Researcher is a broad term which encompasses the inclusion of member of a targeted group or social network as part of the research team, to enhance the depth of understanding of the community to which they belong[124]. The inclusion of a person from within the disability community looked to negate any potential power imbalance felt by participants interacting with the academic research team[125]; potentially enabling enhanced discourse of sensitive issues through shared empathy[126]. The peer researcher was seen as a valuable way of promoting equity and generate collective ownership of the research project, which is a key component of co-design and has been demonstrated in previous studies in the disability sector[127-129].

The peer researcher role was a paid position designed and recruited by the embedded researcher and manager of special projects and innovation. The role required basic skills to interact with Rocky Bay customer participants as an ally and interviewer, as well as lived experience of disability. Additional tasks were determined using a strengths-based approach with the successful applicant. Recruitment followed human resources processes to provide people with disability this experience and an expression of interest was sent to Stages Towards Employment Program (STEP)[73] participants at Rocky Bay to notify them of the role (Appendix 2: Peer researcher expression of interest and candidate interview questions).

The successful candidate, WSJ, was a young man with Autism and obsessive-compulsive disorder (OCD) who had strong verbal communication skills, a passion for movie and other visual media production, and a desire to help others and work in a professional environment. WSJ was involved in every aspect of the project, from the compilation of the ethics application to the final prototype presentation. He received mentorship from the STEP program to navigate the ever-changing landscape of research and project work[73]. WSJ was included in all study processes and received role and task-specific training. Refresher sessions were completed as necessary, similar to the education process of young adult peer researcher education in Kelly et al[128]. Further reflections on the contributions of the peer researcher role are be discussed in chapter ten.

3.7 Co-design

This section is focused on defining co-design and precedes a co-design method publication in chapter seven that will provide a detailed discussion of the application of co-design in the context of the research study. Co-design is explicitly endorsed by the National Disability Insurance Agency and in the Quarter Four 2022-2023 report[67] key initiatives were outlined to build co-design and engagement capacity within the disability community. This aligns the study methods and principles and subsequently Rocky Bay with the priorities of their predominant governance and funding body.

As described in the introduction to this methods chapter, the four principles of co-design as per McKercher[54] are sharing power, prioritising relationships, using participatory means and building capacity. These principles are employed throughout the six steps of the co-design process included in the research outline of the introduction chapter[54] and are referenced across multiple different social and healthcare contexts[53, 102, 130, 131]. The steps include (1) Build the Conditions, (2) Immerse and Align, (3) Discover, (4) Design, (5) Test and Refine (5) and (6) Implement and Learn; the steps will be discussed in further detail below.

3.7.1 BUILD THE CONDITIONS:

This step included intentionally working within the host organisation to build trust and establish appropriate conditions for the meaningful and safe participation of people with lived experience. This step encompasses all that occurs before the co-design, to prepare for sharing power and prioritising participant relationships. This was completed through the previously outlined embedded researcher and peer researcher roles, as well as the steering committee and all actions from the outset of the research study.

3.7.2 IMMERSE AND ALIGN:

A scoping review of the literature and a survey of the wider Australian disability support sector were completed to gain baseline knowledge all iterations of telepractice delivery. In-depth methods for the scoping review and the provider survey are provided in subsequent chapters (chapters four, five & six). Peer researcher recruitment and the inclusion of WSJ in the research team was viewed as a process congruent with the immerse and align step, as it aligned the project team more fully with the needs of people with disability.

3.7.3 DISCOVERY:

The discovery phase is a process steeped in learning with, about and through the people involved in the co-design process, with key concepts of practicing curiosity, valuing many perspectives and looking to include those in hard-to-reach places. Prioritisation of people from minority groups or situations which create challenges for participation, is essential in forming a well-rounded understanding of experiences. These hard-to-reach places involved the inclusion of mature minors on the ethics application to ensure young people could have a voice, culturally diverse participants, working with older adults, people who resided in supported accommodation settings, used assistive communication devices, worked full time, or lived in remote areas of Western Australia. The prioritisation of engaging people with disability through the discovery process was mirrored by the prioritisation of staff engagement across the spectrum of the clinical services department including part time staff, specialist and new graduate participants, and people who are staff as well as live with disability. The discovery process included two processes for engagement with participants, an initial one-on-one interview followed by focus group reflection sessions. This structure was initially inspired by the Experience Based Co-design[132] which was originally outlined in the research proposal and remained consistent following the transition to the current co-design method[54].

Interviews

One-on-one interviews were conducted with volunteer participants across three target cohorts of clinical services customers, clinicians and non-clinical organisational staff at Rocky Bay, with inclusion criteria being:

Customers: currently accessing clinical services and/or family members and carers (inclusive of support and education staff). Customers were purposely sampled for maximum variation in reference to disability type, age and area where services were accessed (across metropolitan, suburban and rural). Recruitment strategies included an emailed invitation, a phone call from the peer researcher offering a follow up opportunity for information; and clinical staff participants were asked to circulate study information and researcher contact details.

Clinicians: currently providing clinical services to customers and/or carers. Clinicians were purposely sampled for maximum variation in reference to service provision type, level of career experience, and area where services were provided (across Rocky Bay Hub locations). Recruitment strategies included an email invitation, confirmation with participant's line manager and provision of study information and researcher contact details.

Non-Clinical Organisational Staff: currently providing support within the scope of their role to customers or clinicians of the clinical services department. Staff were purposely sampled for maximum variation in reference to role and level of interaction with either of the other target cohorts. Recruitment strategies included an email invitation, confirmation with participant's line manager and provision of study information and researcher contact details.

Participants volunteered by contacting the research team through email, phone or in-person and completed the consent process. During the process, they could choose to approve video, audio or written interview data collection. Customers had the option of a support person being present. Participants were assigned an identification number for analysis and quotations with names and identifying information removed for privacy. Customer interviews were conducted by Peer Researcher WSJ who received interview specific training and completed a trial interview prior. Staff interviews were completed by embedded researcher CB, and all interviews were completed either in-person or online (via MS Teams) between July and October 2022. The majority had only used telepractice after the COVID-19 pandemic began in March 2020. The data was transcribed from audio recordings, except for one participant who allowed their interview to be recorded but requested that the researcher delete the recording after transcribing the data. The project sponsor (I.e., Rocky Bay) funded the transcription service for all recordings, with that one exception.

The data analysis process of the interviews included a thematic analysis[49] which informed visually depicted themes presented in the focus group reflection sessions. Customer specific interview data was additionally analysed across a chronological timeline, to produce a customer journey map completed during the design step and discussed further in section 3.7.4 of this chapter and a publication in chapter eight.

Focus Groups

All interview participants were invited to a reflective focus group to discuss the synthesised findings. Focus groups were held on three consecutive days in November 2022, hosted via MS Teams. Service users and clinician groups were held separately to support a comfortable environment with their peers to discuss views and reflections[54]. Three strategies were utilised to facilitate accessibility of the focus group sessions; the first being flexible scheduling where multiple options for date and time were provided to be preferentially ranked, with researchers selecting two most preferred options for each group. The second strategy was an introduction video and information booklet provided one week prior to enable the option of preparation (Appendix 3). Both resources were prepared and voiced by peer researcher WSJ to ensure information was genuinely voiced by the community, for the community.

The third strategy utilised visual metaphors to represent themes in the data and describe abstract concepts in physical terms. The use of visual practice to improve accessibility of the research study content will be discussed further in section 3.8 of this chapter. The structure and content of the focus groups were identical across all groups ensuring accessibility of all information. Response options were anonymous responses through the menti.com online platform, text through MS teams chat and verbal responses written from session recordings.

Purchasing Platform Feature Options (Activity)

The final component of the focus group sessions was an activity where each attendee was provided ten units of money which they could spend in any combination on five available telepractice platform features. Each of the features were described and the participants were informed that the features are presently available. Peer researcher WSJ provided an exemplar of the activity and both he and primary session facilitator CB supported participants in engaging with the activity.

Verbal Description Prompt in Focus group:

Virtual Waiting Room: plays music, updates you if clinician is running late, prompts forms to be completed pre session.

Interactive games and activities: that both clinician and customer can interact with and change e.g. whiteboard, matching games, snakes and ladders, uno etc.

Interpreter services: click on an app within the videocall and type in the required language. An interpreter for that language is pulled into the call to assist.

One click application: a more simple set up for entering the call, for example going to the same webpage URL every time and typing the name of your clinician in the box to join their waiting room or alternatively selecting a type of therapy clinic to enter the waiting room and meet the clinician.

Interactive Forms: to fill out your pre- session forms, Individualise Your Services (IYS) form (Rocky Bay Specific), sign service agreements within telepractice sessions.

The final session question prompted participants to assess whether these features would warrant the effort of a new platform or whether they would prefer to remain with the current videocall platform (MS Teams).

Following the completion of each of the focus groups, participants were informed of the design workshops to be conducted in the next step of the co-design process and that the research team would contact them individually to discuss if they would wish to participate. This information was initially published in a conference publication which is included in Appendix 4

3.7.4 DESIGN

The design step of co-design is crucial, however frequently completed without the inclusion of community members[133, 134], rendering the process as more consultative than collaborative. The key prompts for this stage were to develop many ideas and hold them lightly, collaboratively generate responses to insights and plan for testing these ideas through prototyping[54].

All discovery phase participants were offered the opportunity to participate in a co-design workshop series to be conducted as a hybrid of in-person (session 1) and virtual (session 2-5). The selection of co-designers was predicated on the intent to have equal numbers of customers and staff. The workshops started with ideation of future success, followed by journey mapping the current state of telepractice, identification of problem points with resolution ideation, storytelling and generation of future solutions and finally prototype creation. Further details of the content and outputs of each of the co-design workshops is provided in the co-design methods publication in chapter seven.

3.7.5 TEST AND REFINE

The penultimate step in the co-design process, and one which is scarcely completed in telepractice design prior to piloting the intervention, is testing and refining through prototypes[135]. The production of a prototype is a tool for including a wide variety of perspectives and can be important to establish appropriateness and fit-for-purpose, both significantly impacting the desirability and usability for end users[135].

During and between workshop sessions, co-designers created two prototypes of potential telepractice improvements, one was customer focused and the other from a staff perspective. A Qualtrics online survey provided viewers the opportunity to give feedback and recommendations. The video storybook prototypes were distributed at team meetings across Rocky Bay locations. Distribution of the customer prototype was limited as departments of Rocky Bay restricted distribution to only providing it directly to clinical customers via one email.

A final reflection session was conducted with the co-designers to review the findings. The content of the session will be discussed further in the methods paper in chapter seven. Further details of the prototype survey findings are provided in chapter nine with the implementation proposal.

3.7.6 IMPLEMENT AND LEARN

This research study concluded with an improvement and implementation proposal, which includes a potential future telepractice service as designed by the co-designers and reviewed by the wider Rocky Bay clinical department staff and customers. The implementation of telepractice at Rocky Bay falls outside the scope of the research. This allows Rocky Bay to implement each recommendation gradually based on resourcing and financial constraints. The implementation proposal recommends co-designer inclusion in the process of implementing the changes.

3.7.7 CO-DESIGN SUMMARY

To summarise the co-design process, while the steps are considered sequential, they are not intended nor were they conducted in an entirely linear application. For example, regarding building of conditions, while it is essential to commence with this process, it is erroneous to assume that the building of these conditions must only occur once at the outset. It is an iterative process which occurs continually to affirm and reaffirm a safe environment for participants, ensure alignment of the host organisation with the intent of co-design and engaging professional participants to intentionally share power and reflect upon any unconscious biases.

3.7.8 CO-PRODUCTION AND CO-AUTHORSHIP

The authorship of a co-produced research study should accurately represent the valuable input of those who contributed, which sits in contrast to the predominant tendency for research publications to exclusively acknowledge academic contributors[136-138]. Whether the justification relates to anonymisation of participant information for confidentiality, a lack of precedent or established practice is unclear. It is obvious however, through the compilation of methods in this chapter, that in a study with co-design at its core and guiding principles, the acknowledgement of authorship must extend past the traditional realms of the research team. As such the inclusion of co-designers where appropriate and with their express permission as co-authors of the published outputs was completed. Any co-designers who did not consent to co-authorship were thanked for their contribution anonymously in the acknowledgements.

Precedence for inclusion of peer researchers as co-authors exist in works such as Kelly et al[128], accepting that with the appropriate supports people with disability are able to fulfill criteria established for authorship contributions such as the Contributor Role Taxonomy (CRediT)[139]. Additionally, it is advocated by Mickan and Coates[119] that one purpose of the embedded researcher role is to facilitate the development of those they work with to become published authors in peer review journals. In relation to co-design participant inclusion as co-authors, the concept is advocated for by Bibb[53] and was demonstrated by Fairchild and Mraz[140] in which the subject of the case study collaborated in the production of the publication; with other academic publications similarly including participant co-authors however not all as individually named authors[129, 141, 142]. Oliver et al[143] additionally advocates for what they term patient authors, and patient-authored publications, and while this thesis does not support the term patient in the context of people with disability, the concepts of inclusion and recognition are nonetheless consistent.

3.8 Visual Practice

The goal to co-create inclusive research, both in the intrinsic landscape of the study and the extrinsic reach of knowledge dissemination, was prioritised throughout this thesis. The use of visual practice through a myriad of different and complementary strategies worked to allow marginalised voices to be heard. The prioritisation of the marginalised aligned with the principles of co-design and fit perfectly with the critical realist viewpoint of the need to ensure that research engages with the whole challenge.

As academia and research become more accessible to the general public, it's important to consider the message being shared and also the presentation format. This thesis emphasises visual elements, including metaphors related to the natural world and images, to make complex concepts and themes more understandable. The visual practice strategies described aim to integrate more accessible methods into planning, analysis, and description of the study.

Adapting to better serve the audience of the research study is imperative in the landscape of significantly more research being produced, published and circulated. In a sea of new information, it is important to use strategies which target the niche of people who benefit from the research and utilise the findings. The niche may include a wide variety of education levels, accessibility needs and experience with the content or context. Research studies aiming for translation into practice in this context should prioritise the needs of their niche such as disability service users and providers.

Several visual practice strategies were mentioned previously in this thesis, including analytic metaphor and visual prompts. Others are discussed in later chapters or provided as examples in supplementary documents. Visual practice aligns with the co-design principles of sharing power and building capacity[54], and aims to provide both high-quality academic impact and accessible communication for any readership. The six visual practice strategies which were employed in the research study were:

3.8.1 ANALYTIC METAPHOR

The use of an analytical metaphor in reporting findings aimed to improve accessibility of the academic research for broader audiences including the disability community. Metaphors are used by humans as a way of structuring understanding of experiences[57], therefore can be utilised as a method of expanding understanding through linking familiar concepts to those less familiar or more complex. Recent examples in qualitative health research include a road trip in families with a Down Syndrome child[144], welfare systems as a pinball machine[145] and an iceberg representing caring for aging parents[146]. In these examples and the current study, authors selected a metaphor during the analytic process to improve understanding of complex topics[57] described using real world symbols[54].

Within the body of the thesis analytic metaphors used include:

> **Canyon and Bridge:** description of the research into practice translation gap as a canyon, with the supporting metaphor of a bridge used to traverse the canyon relating to the presence of the embedded research at the host organisation.
>
> **Formation of a Diamond:** is likened to the process of integrating telepractice under the pressure of the COVID-19 pandemic. This metaphor is included in the fifth chapter, which discusses COVID-19 related findings of the Australia wide disability provider survey.
>
> **Purchasing a pair of shoes:** in which the relationship between the left and right shoes may be viewed as analogous to the relationship between in-person and telepractice delivered therapy sessions. This metaphor is included in the sixth chapter, which discusses telepractice functionality from the Australia wide disability provider survey.

Selection of the analytic metaphor involved the research team proposing multiple metaphor options, from which lay responders which included the peer researcher and other staff members at Rocky Bay selected the clearest visualisation that resonated with the findings.

3.8.2 INFORMATIONAL VIDEOS

People with disability have previously indicated a preference for verbal descriptions of content including information sheets such as those provided for informed consent[147]. To support participants who may prefer verbal explanations of content, this study produced a series of seven support videos (with closed captioning) accessible via YouTube. Videos provided information including the customer participant information and consent (both abridged and full version), an introductory video in preparation for both the focus group and workshop sessions, as well as an MS teams how to guide. Each video script was written as a collaboration between the embedded and peer researchers with the peer researcher predominantly featuring in the recordings to provide information delivered by a person from the disability community. Each video is available for viewing through the list of links included in Appendix 5 or via the QR code.

3.8.3 VISUAL PROMPTS

Visual prompts were frequently used in the research study, particularly in conducting focus groups. The use of visual and auditory prompts, along with metaphors that compare complex or abstract problems to concrete or real-world ideas, improves the opportunity for equitable understanding of concepts[54].

There were five visual metaphors and associated auditory descriptions (for those with visual impairment) presented during the focus group sessions, with selected examples included below.

Image One: The Double Doors

Verbal Description Prompt in Focus group: The majority of people we talked to across both groups would choose option one (the red door). They talked about preferring face to face, but the time, money and energy for travel they would prefer not to have. However, some interviewees, for example people with anxiety, or neurodiverse people may prefer the separation and perceived decrease pressure of not being in the same room which option two provides (the green door). Unfortunately, teleportation doesn’t exist (yet) and is shown in the image as out of order. But people we talked to seemed to feel telepractice is a pretty good backup option when factors such as stress, sickness, fatigued, travel, hectic schedules, safety risks like inclement weather and funding get in the way of in-person therapy.

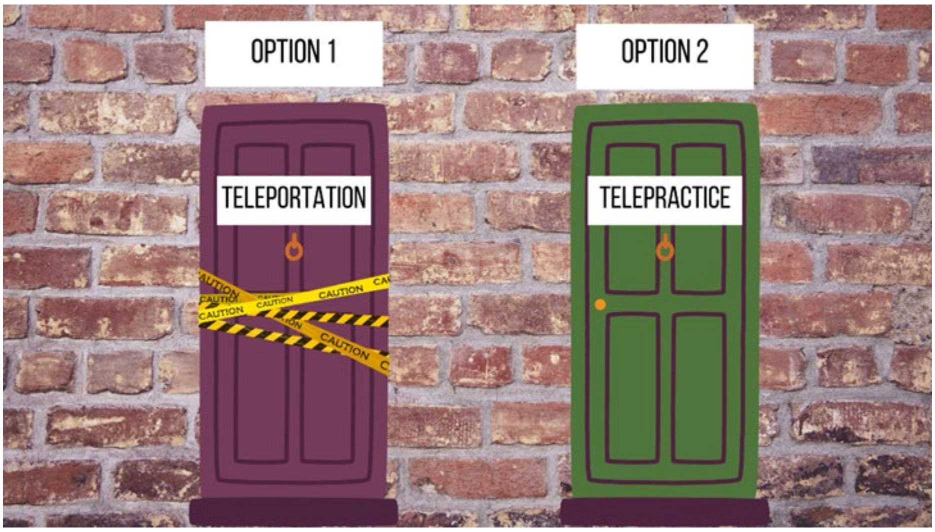


Figure 2: Image One: The Double Doors

Image Two: Expectation Vs. Reality

Figure 3: Image Two: Expectation Vs. Reality

Verbal Description Prompt in Focus group: This image is thinking about the path we take to a telepractice session. There were mixed messages from participants, resulting in the image not having each path labelled as expectation or reality. The main impression given by the interviews was that people's expectations did not necessarily match with reality and that experiences were incredibly inconsistent.

3.8.4 VISUAL NON-VERBAL RESPONSE CARDS

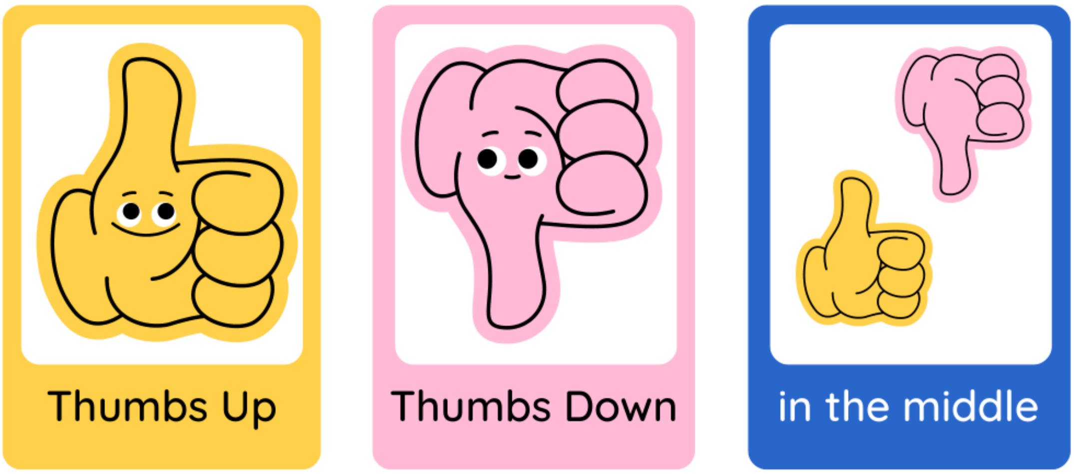


Figure 5: Visual non-verbal response cards

Each co-designer who attended the workshops received a care package including resources for engagement in activities. This included a set of response cards to enable non-verbal visual responses to questions to support this communication preference. The creation and use of the cards was guided by the insights of Schwartz and Kramer[129] and are discussed further in the methodology paper in chapter seven. An example of the cards in each co-designer pack are included in figure 6 above.

3.8.5 JOURNEY MAP VISUALISATION

As described previously in section 3.7.4 (Design) and to be further elaborated on in chapters seven and eight, one activity completed by co-designers was to construct a journey map to describe current customer telepractice experiences. The visualization used arrows to show direction, coloured sections to separate each phase in the timeline, and a visual scale of 1-5 to indicate changes in customer emotion during their interaction with the service. The visual scale of emotion enabled a representation of the high and low point of the current service and in conjunction with strengths and challenges listed in boxes underneath, clearly represents areas of success and those which require further improvement[148]. A full-page representation of the co-designed journey map is included in chapter eight.

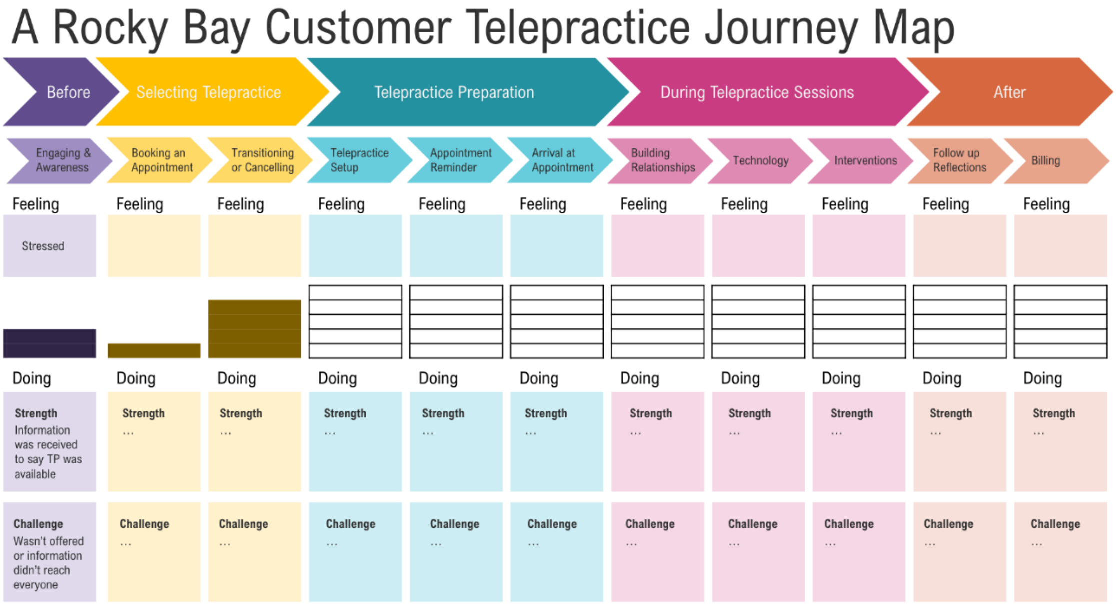


Figure 6: Draft Journey Map

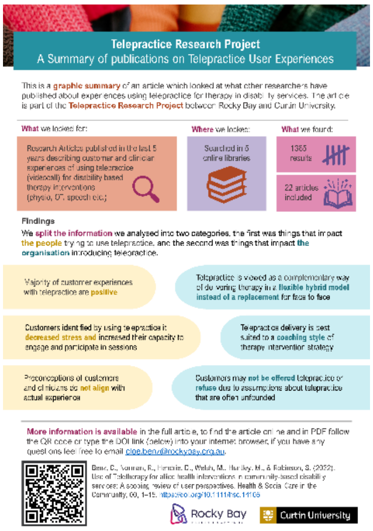
3.8.6 VISUAL STORY BOARD PROTOTYPE

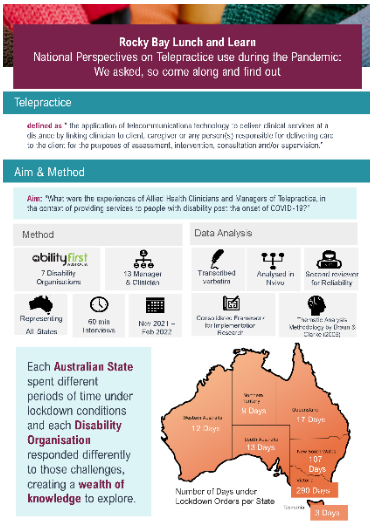
The prototype produced within the workshops by the co-designers, took the form of an illustrated story book with voiceover and closed captioning. A co-design project on educational resources to support autistic students in the classroom completed by Kerr et al[133] produced similar video resources termed visual personas, which were used to enable external depiction of themes without directly describing the current or future experiences of participants. To improve the accessibility of the telepractice service prototype, both for co-designers creating it and viewers with disability, it was proposed to be a children's illustrated story format created on Microsoft PowerPoint. This enabled multiple co-designers to contribute as the software is relatively universally accessible and could produce a prototype including cartoon depictions of short stories with animations, recorded voiceover and captioning. Discussion regarding the creation of the prototype videos is included in the co-design methods publication in chapter seven. Follow the QR code to link to the customer version of the prototype video, both the customer and the staff version links are included in Appendix 5.

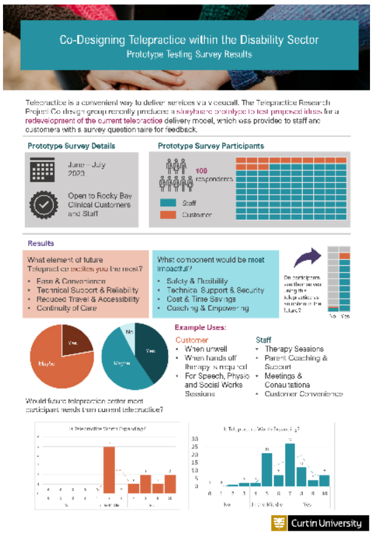
3.8.7 INFOGRAPHIC SUMMARIES

The project used a multi-format strategy from conception to distribute information through seven one-page summary infographics. These infographics included contact details for anyone who wanted to learn more. They aligned with the study's goal of sharing information in formats suitable for non-academic audiences; Riches and O'Brien[142] discussed co-researchers with disability prioritising dissemination to influence service providers, other people with disability, policy writers and the public rather than academic scholars. Infographics were created in a series with similar formats, colour schemes, and content structure to create familiarity for the reader. Example infographics are provided below, and the full-page infographics are included in each chapter with corresponding publications. The full series is also included in Appendix 6.


Co-Designing Telepractice within the Disability Sector


Telepractice Research Project
A Summary of publications on Telepractice User Experiences


Rocky Bay Lunch and Learn
National Perspectives on Telepractice use during the Pandemic:
We asked, so come along and find out


Co-Designing Telepractice within the Disability Sector
Prototype Testing Survey Results


Telepractice Research Project
National Perspectives on Telepractice use during the Pandemic


Telepractice Research Project
The Journey of using Telepractice for Rocky Bay Customers

Telepractice Research Project
National Perspectives on the Functionality of Telepractice

This is a **graphic summary** of an article which looked at what allied health clinicians and clinical department managers of Disability service organisations around Australia think about how functional and useful telepractice is for delivering and accessing therapy. The article is from the **Telepractice Research Project** between Rocky Bay and Curtin University.

Telepractice is accessing and providing clinical services via telecommunications (video) technology.

What we looked for:

"How functional and useful do Allied Health Clinicians and Managers think telepractice is to provide services to people with disability?"

Where we looked:

What we found: We described the findings like a pair of shoes, this was a way of structuring understanding of participant experiences in comparison to a physical visual.

We found the function of telepractice fits differently for each individual, just like pairs of shoes.

Allied Health Clinicians and Managers thought telepractice functioned best in addition to in-person sessions through a flexible hybrid delivery model.

Telepractice has its own strengths and weaknesses and isn't a substitute for in-person session, much like left and right shoes are similar, but not the same.

The flexibility of having both telepractice and in-person options could support the unique needs of individual people with disability instead of trying to make one size fit all.

Think of Telepractice as being different to in-person sessions just like left and right shoes!

More information is available in the full article, follow the QR code or type the DOI link (below) into your internet browser, if you have any questions about the research please email cloe.benz@curtin.edu.au. and for Rocky Bay Telepractice email matthew.locantro@rockybay.org.au.

Benz C, Dantas J, Welsh M, Norman R, Hendrie D, Robinson S. "A qualitative study assessing Allied Health Provider perceptions of telepractice functionality in therapy delivery for people with disability." Submitted with Health Expectations

Curtin University Human Research Ethics Committee Approved (HRE2021-0731)

Figure 7: Thumbnail images of Telepractice Study Summary Page Infographics

3.10 Ethical Considerations

The Curtin University Human Research Ethics Committee provided approval through the process of one ethics application supported by a series of amendments to reflect the sequential nature of the study (Appendix 7). A submission was concurrently made for approval of the project to the Executive of Rocky Bay in their role as industry partner.

There were numerous ethical and feasibility considerations within the proposed project that are to be addressed. In the context of a research study being conducted by an embedded researcher within a partner organisation, extra ethical considerations needed to be made in ensuring staff participants were providing informed voluntary consent. Strategies to address this included excluding those who were involved in the co-planning from participating in the co-design process, so that research study participants were approached post ethical approval to provide explicit informed consent for their participation[118].

Due to the intention to complete a co-produced research study which incorporated people from a potentially vulnerable group of the population, i.e. people with disability, ethical considerations were made to reduce the potential imbalance of power between participants and the research team, including the peer researcher conducting the customer interview. The thesis acknowledges that the use of ethics committee terminology such as *vulnerable group* is potentially problematic and is incongruous with co-design principles of elevating lived experience and championing equity. Further assessment of the apparent discrepancy between the research methods of this thesis and current ethical processes are included in the publications of chapter seven and chapter ten. Additionally realistic conversations were had with both customer and clinician cohorts of the co-design group regarding the prospect of some of the proposals being implemented at Rocky Bay; to ensure that they understood that while their contributions were valued and heard there may be realistic constraints which prevent all suggestions from being implemented or causing delay in the timeline for implementation[149]. Further discussion of ethical considerations is included in co-design methodological case study paper in chapter seven.

3.11 Frameworks and Research Paradigms

As evidenced throughout the methods chapter presented, the predominant method and methodology of the research study was co-design and co-production in a bricolage of complimentary methods, frameworks and design practices used to support the interplay of research, community and organisational aims and objectives. This section of the thesis consists of a compilation of research paradigms and frameworks which were instrumented in the completion of the research; these were utilised across varying phases of the project and additional details of the intricacies of their application will be included in the published papers of subsequent chapters.

3.11.1 CONSOLIDATED FRAMEWORK FOR IMPLEMENTATION RESEARCH

The Consolidated Framework for Implementation Research was incorporated to support the analysis and understanding of findings and to provide a robust and consistent framing of implementation at each stage of the study[55, 56]. The cyclical use of the CFIR enabled evaluation of previous iterations comparative to proposed strategies for future iterations, and provide structure for ongoing review within the implementing organisation[55]. Across the five domains of intervention, outer setting, inner setting, individual characteristics and implementation[55], selection of salient constructs by the Telepractice Steering Committee as discussed previously in this chapter (section 3.5) provided a research focus tailored to the needs of the partner organisation. The selected CFIR constructs were used to guide interview questions, guide initial coding of data sets, and a structure in which to sort and prioritise the findings across the phases of the research study to compile the proposed implementation plan to distribute to the Rocky Bay executive and clinical department management team.

3.11.2 QUALITATIVE THEORETICAL UNDERPINNING

The theoretical underpinning of the study includes a contextualist epistemological position[47, 48], which assumes the co-production of meaning by participants with the researcher that cannot be separated. As such, knowledge was viewed as a contextual representation of truth which is grounded in participant accounts, while additionally acknowledging the role of the researcher[49, 50].

Furthermore, the ontological stance of the research study was a form of critical realism which assumes a singular reality and retains the concept of truth; however, assumes an embedded influence of language and culture linked to each human experience consequently resulting in multiple perspectives of reality[51]. The presumptions of the described theoretical position aligns with the overall study aim of co-production, as it enabled researcher to place the lived experience of participants as central, while considering these accounts in terms of contextual and structural underpinnings[51].

Within the dimensions of critical realist research, it is important to note that this thesis is action oriented[150]. This denotes an intention to not only create new knowledge from lived experience but to put this into effect and to take action[150]. The action orientation of the case study was both intensive in focusing on a specific service as well as engaged with the target cohort and embedded in the context[151]. The identified need to understand causality at different levels and identify patterns in an extensive scale meant the thesis commenced with a more broad and detached critical realist dimension before progressively narrowing towards the case study cohort and context[151].

Through the critical realist frame, the research intent was to reconceptualise the mechanisms by which the event (of telepractice) is experienced and its impact, according to the participants’ and researchers' joint perspectives[152]. Furthermore through reconstructing them mechanisms to better suit the disability community, we sought to build a generalisable theory which could be applied in other circumstances, while maintaining attention to the unique aspects of the case study context[152].

3.11.3 REFLEXIVE THEMATIC ANALYSIS

The reflexive thematic analysis method of qualitative data analysis as outlined by Braun and Clarke[49] was instrumented for data analysis of qualitative data completed in the scoping review (chapter four) and Australia wide disability support service provider survey (chapters five and six). The selection of method aligned with the intent to draw patterns across the data sets, apply a critical realist orientation and enabling the flexibility to integrate an analytic metaphor to the naming of themes and description of findings.

Elements of the method specific to reflexive thematic analysis as described by Braun and Clarke[49], is the method does not support the concept of reaching saturation, however the key identifier of richness of the data set within the study was employed at each appropriate stage of the study. Additionally, the use of frequency related measures of coded qualitative material is not supported by the reflexive thematic analysis method with justification based on removing the judgement that more is better and that fleeting occurrences may be key to understanding experiences[49]. Application of the process of reflexive thematic analysis including the iterative process of progressing through the six stages is described in relation to the specific data set being analysed within the corresponding published articles in chapters four, five and six.

3.11.4 ANALYTIC METAPHOR

The use of analytic metaphor was discussed within the methods chapter in section eight on the use of visual practice, however it is important to note it was applied as a research method complementary to reflexive thematic analysis. Further description of its use is included in the methods sections of the published papers of chapter five and six describing the findings of the Australian disability support service provider survey.

3.11.5 UNIVERSAL DESIGN

The principle of universal design, previously mentioned in the service design and implementation section of the background (section 2.7), involves promoting equitable access and opportunities for all people[61]. Universal design is commonly described and understood in the context of the built environment and potential barriers which are disabling for a person to access to physical spaces. Increasingly the principles of universal design are being applied and discussed reference to the digital environment in promotion of equitable access to digital services[11]. As such, the principles of universal design are addressed in terms of gaining insight into how telepractice functions for people with disability, and analysis of potential downstream or broader impacts of applying these principles to future service design[96].

3.11.6 SCOPING REVIEW

The completion of a scoping review is particularly relevant in assessing emerging evidence and identifying gaps where a paucity of rigorous peer reviewed literature necessitates a range of study designs and grey literature be incorporated[153]. In understanding the lived experience of people with disability and provider using telepractice, it was deemed the most appropriate method of literature review. Therefore, a scoping review was conducted in accordance with the Joanna Briggs Institute Methodology for Scoping Reviews, with criteria based on the Population-Concept-Context framework[154], in compliance with the Preferred Reporting Items for Systematic Reviews and Meta-Analysis Extension for Scoping Reviews (PRISMA-ScR) Checklist[155]. The scoping review of available literature is included as the next chapter of the thesis (chapter four).

3.12 Chapter Summary

In this chapter the thesis elaborated on the principles of co-design and provided a high-level explanation of the bricolage of design and research methods employed to enable meaningful and intentional inclusion of people with disability, their care network and service providers in the research study from conception to completion. The next chapter provides an analysis of the available literature through a scoping review of experiences of people with disability, their care network and service providers in using telepractice to access allied health services.

CHAPTER 4: SCOPING REVIEW

This chapter provides an analysis of the available literature through a scoping review of experiences of people with disability, their care network and service providers in using telepractice to access allied health services. The scoping review will be presented as an open access academic publication which includes a context setting introduction, scoping review specific methods, results of the review and discussion of application within the wider context of policy, practical applications and future research avenues. Following the open access article a single page summary infographic is provided and an update of additional literature published after the original scoping review search.

4.1 Preface

The article included below has been published as an open access journal article in Health & Social Care in the Community, and appears in this chapter, from the next page, in the original format. All supplemental material mentioned in the article is included in the thesis as Appendix 8, additionally the original scoping review protocol is included as Appendix 9.

> **Reference:** Benz C, Norman R, Hendrie D, Welsh M, Huntley M, Robinson S. "Use of Teletherapy for allied health interventions in community-based disability services: A scoping review of user perspectives." Health & Social Care in the Community [https://doi.org/10.1111/hsc.14105]. 2022 [cited 2022/11/13];n/a(n/a) doi:https://doi.org/10.1111/hsc.14105

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DOI: 10.1111/hsc.14105

REVIEW ARTICLE

Health and Social Care in the community

WILEY

Use of Teletherapy for allied health interventions in community-based disability services: A scoping review of user perspectives

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Abstract

Understanding the experiences and perspectives of users of teletherapy living with a disability and working with them, offers the potential to improve its capacity to meet their requirements. Literature examining the effectiveness of interventions delivered via teletherapy often fail to explore the motivators and implementation needs of the users. The scoping review aimed to examine the research evidence addressing user perspectives of teletherapy in delivery of allied health interventions to the disability community. The Joanna Briggs scoping review protocol methodology was employed with searches completed across five databases (ProQuest, CINAHL (EBSCO), Medline (OVID), Scopus, Google Scholar) in September 2021. The search yielded a total of 1365 results, 147 progressed to full text screening and 22 articles included in thematic analysis. Findings were split into themes addressing organisational and implementation based considerations for teletherapy, and secondly the social and contextual considerations of the Target Participants. The two areas of interest were addressed under each theme some of which include resourcing and upskilling, financial, challenging the status quo, moving from hands on to coaching and the utilisation of a hybrid model of intervention delivery. Teletherapy is viewed as creating a distinct set of benefits and challenges compared to in person service delivery, which impact individual members of the disability community differently. The scoping review identifies a strong need from recipients to trial teletherapy and experience it personally to facilitate understanding of how it can best suit an individual. More than being viewed as an alternative to in person services, teletherapy is viewed by users as better suited as a complementary service with flexibility of hybrid model opportunities valued above exclusive use of one over the other.

KEYWORDS
allied health, disability, implementation, scoping review, Teletherapy, user perspective

1 | INTRODUCTION

Over 1 billion people live with some form of disability (15% of the world's population), up to 190 million people over the age of 15 yrs (3.8%) experience significant functional difficulties, the number of people with disability is rapidly increasing and almost every person will experience some form of disability within their lifetime (World Health Organisation, 2021). Equitable access and opportunities for people with disability have been limited, advocated and hard fought for by those within the disability community (Healy & Clarke, 2020; National People with Disabilities and Carer Council, 2009). Digital health initiatives are repeatedly touted as having the potential to improve access and empower persons with a disability to access evidence-based care within their homes (Forducey et al., 2012; Hines et al., 2019; Kendall et al., 2020; Zhou & Parmanto, 2019).

Teletherapy service design for those living with disability has unique challenges which have scarcely been addressed in evidence-based literature or industry (Annaswamy et al., 2020). There have been recent calls for increased investment in designing teletherapy models to address the needs of the disability service user to help overcome inequity and access barriers (Annaswamy et al., 2020; Boyle et al., 2020; Kavanagh et al., 2020; Kendall et al., 2020; Valdez et al., 2020; Wosik et al., 2020). The context of the COVID-19 pandemic was highlighted in Kendall et al. (2020) as the largest natural trial of technological tools in history, encouraging the healthcare and academic communities to utilise the opportunity to gather evidence and optimise services, specifically in relation to inequities experienced by the disability community. The lack of inclusion of people with disability and of accessibility modifications in digital health government policies and documents (Kavanagh et al., 2020) impedes organisations in addressing technology advancements for implementing teletherapy models (Johnsson & Bulkeley, 2021a).

Recently published systematic and scoping reviews have focused on synthesis of evidence regarding effectiveness of interventions via teletherapy for use with specific disability cohorts (Anil et al., 2021; de Nocker & Toolan, 2021; Dias et al., 2021; Ellison et al., 2021; Ferguson et al., 2019; Tan-MacNeill et al., 2021; Unholz-Bowden et al., 2020; Vandekerckhove et al., 2020). To achieve roll out and scalability of teletherapy into ongoing sustainable service delivery modes, the authors propose a broadening of available literature synthesis to include an assessment focusing on operational requirements and Target Participant considerations. Operational requirements focus on the service design, introduction and implementation, technical processes, transactional and operational aspects of teletherapy delivery; and secondly the Target Participant considerations focus on who is engaging in teletherapy, what their broader personal and systemic contexts or intersectionality may be and its impact on accessing services delivered via teletherapy.

What is known about this topic?

- Teletherapy use has increased considerably as a strategy to manage the COVID-19 pandemic.
- Teletherapy pilot studies often do not progress to implementing a sustained service model.
- Published literature synthesis focus on effectiveness of specific interventions within a disability cohort.

What this paper adds?

- Metropolitan and regional recipients are motivated to use teletherapy for reasons other than access or travel, however hybrid service models are generally preferred.
- Service providers may not be offering teletherapy due to assumptions regarding recipient capacity rather than giving the option.
- Future research should investigate implementation strategies which improve self-efficacy and familiarity for providers and assess follow through impacts on recipient experience or self-efficacy.

1.1 | Aim and research question

The aim of the scoping review was to examine the research evidence addressing user perspectives of teletherapy in delivery of allied health interventions to the disability community. The research question was:

"What are the perspectives and experiences of users receiving and providing allied health interventions via teletherapy in disability community based services?"

The broader aim incorporates two areas of interest captured in the following research sub-questions (RSQs):

RSQ 1: What are the perspectives and experiences of users relating to the overall operational design and implementation of teletherapy?

RSQ 2: How might perspective and experiences reflect the overarching context of the Target Participants and influence their experience and ability to engage with the delivery mode?

2 | MATERIALS AND METHODS

A scoping review, in lieu of a systematic review, is particularly relevant in assessing emerging evidence and identifying gaps where a paucity of rigorous peer-reviewed literature necessitates a range of study designs and grey literature be incorporated (Levac et al., 2010). In recent years preceding this review a rapid acceleration of uptake and academic investigation has occurred on the topic of digital health and teletherapy as a subset, partially due to the COVID-19 pandemic (March 11, 2020–present), therefore mapping of available literature was deemed the most appropriate methodology for the review. This scoping review was conducted in accordance with the Joanna Briggs Institute Methodology for Scoping Reviews, with the inclusion and exclusion criteria based on the Population-Concept-Context framework (Peters, 2020). This report of the review data is compliant with the Preferred Reporting Items for Systematic Reviews and Meta-Analysis Extension for Scoping Reviews (PRISMA-ScR) Checklist (Tricco et al., 2018). The original aim, research questions, search parameters and methods of analysis were specified in the scoping review protocol (Benz et al., 2021), which outlined a broader research aim and question relating to all evidence specific to teletherapy utilisation and implementation of allied health interventions to the disability community. On completion of the full text review and data extraction phase, an advanced corpus of literature was found with a focus on effectiveness of intervention provision via teletherapy to members of the disability community. These findings demonstrated the need to refine the review scope and research questions and digress from the original protocol. The authors deemed a specific examination of user perspectives across allied health intervention provision to the disability community to be a notable gap in the synthesis of current literature (Braun & Clarke, 2006).

2.1 | Population, concept and context of the review

Persons with disabilities as per the World Health Organisation (WHO) are those "who have long-term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others" (United Nations Department of Economic and Social Affairs, 2006). The review includes persons with disabilities accessing services outside of acute healthcare settings (i.e. not in hospital, outpatient clinics, rehabilitation services) within countries with well-developed healthcare systems (e.g. Australia, the United Kingdom, the United States). These services may be provided in community or primary care settings (private allied health clinics, education or disability specific organisations) to address long-term disability functional goals. Person-first language conventions are utilised within the review in deference to the preference of experts with lived experience who contribute to the research project, in order to respect and affirm their identity; however, we respect the right to choose and the potential for the alternate preference of identity-first language by members of the disability community (People with Disability Australia, 2021).

The context of the review centres on persons with disabilities who receive specific services which seek to address functional goals as per the WHO International Classification of Functioning, Disability and Health (ICF) Framework (Novak et al., 2013) through allied health interventions. This is inclusive of allied health interventions provided by physiotherapy, occupational therapy, speech pathology, behaviour support, exercise physiology, dietetics or an allied health assistant guided by an aforementioned practitioner. Interventions are provided directly to a recipient or their support unit (parent, sibling, other family member, support worker, teacher, teachers aid) by an allied health practitioner.

Teletherapy is defined as a mode of service delivery wherein the recipient conducts therapeutic activities under the management of a provider who is located remotely (Parmanto & Saptono, 2009). The intervention may be delivered through a variety of means both synchronously and asynchronously (Parmanto & Saptono, 2009), however, specifically within the context of this scoping review the focus is on Teletherapy where synchronous videoconferencing is the predominant interaction between service provider and recipient. The videoconferencing may be supported by other digital or non-digital technologies used to enhance the intervention, however, if the predominant interactions are asynchronous the interventions were excluded.

2.2 | Search strategy

A systematic search of bibliographic databases was conducted on the September 22, 2021 using five databases (ProQuest, CINAHL (EBSCO), Medline (OVID), Scopus, Google Scholar) to provide a baseline of available academic literature. A subsequent iterative process of reference and authorship review of articles and grey literature sources was undertaken to identify any further articles which meet the inclusion criteria (Table 1). An example search strategy is outlined in Appendix S1.

The title and abstract screening process was completed by one author (CB), with additional authors contributing input regarding ambiguous articles. Full text review for potentially eligible studies was completed by one author (CB), with any potentially contentious articles escalated to the other authors (SR, RN, DH, MW) for determination of eligibility.

2.3 | Data extraction

Data from included studies was extracted by one author (CB), into a predetermined data extraction table outlined in the published protocol (Benz et al., 2021).

2.4 | Synthesis of results

The data were analysed and synthesised with a series of methods including:

a. Descriptive characteristics of the overall cohort of included studies, which identified trends in geographical location, timing comparative to the onset of the COVID pandemic, diagnostic and age groups as well as methodological characteristics.
b. The Consolidated Framework for Implementation Research (Damschroder et al., 2009) was utilised, and salient constructs

TABLE 1 Selection criteria

Inclusion criteria	Exclusion criteria
User or provider of disability services (i.e. National Disability Insurance Scheme (NDIS) participants or equivalent disability service recipient inclusive of mental health diagnosis, carers, family members, teachers or education assistants providing therapy support, allied health professional, disability clinician, disability provider employee/manager/administrator, disability policy makers)	Participants accessing specialist psychological or mental health support not related to their disability supports (i.e. health sector mental health services, community mental health programs, specialist telepsychiatry)
Video Based Synchronous teletherapy service provision	A person with disability accessing acute healthcare or primary care services
Analysis of user perceptions of implementation ~~or effectiveness~~ of teletherapy as a primary objective, with studies discussing disability care sector service provision (therapy, social supports, early intervention, service management, personal supports)	Asynchronous digital health interventions (e.g. app based, web-based education series, wearable telehealth monitoring technology)
Original primary research or evaluation articles (any methods) and Research is defined in thse context of the scoping review to be 'activities designed to develop or contribute to generalizable knowledge, i.e., theories, principles, relationships, or the information on which these are based, that can be confirmed or refuted by recognised methods of observation, experiment, and inference' (Last, 2007)	Teletherapy services provided via telephone
Available in English Language with accessible full text	Secondary review articles including systematic reviews, meta-analyses, meta-syntheses, narrative reviews, mixed-method reviews, qualitative and rapid reviews which have been published in either peer reviewed academic publications or grey literature.
Publication date between January 2016 and September 2021.	Opinion pieces, commentaries editorials without any components of original research
	Articles which summarises or provides an overview of literature without a review method
	Studies in non-community disability ~~sector~~ settings (healthcare, hospitals, ~~primary health~~, aged care, ~~community health~~, veteran support services)

selected as the initial codes (Appendix S2) to frame themes in the context of implementation.

c. The research questions predispose the included studies to be qualitative or mixed methods (inclusive of qualitative data), as such a reflexive thematic analysis method (Braun & Clarke, 2006, 2022) of data analyses was followed by one author (CB) to guide a deductive coding process commencing with the CFIR constructs as the lens through which to interpret the data and expanding in to theme generation and description.

3 | RESULTS

The scoping review search yielded 1357 results with eight additional studies located external to the database searches (Figure 1). At the screening of title and abstract stage, 852 articles were screened, and 147 progressed past this stage. Of the 147 articles selected for full text screening, 125 did not meet criteria, a list of the studies and the corresponding reason for exclusion is included in Appendix S3. Articles included for the review ($n = 22$) are outlined with preliminary descriptive characteristics in Table 2.

Included articles described a wide variety of contexts, perspectives and themes; however, studies have disproportionately focused on particular cohorts of the disability population. Only two articles described adult cohorts, four of the articles reported on all ages and the remaining studies ($n = 16$) described paediatric cohorts.

From a geographical point of view, eight studies were from Australia, one from Italy and the remaining studies were completed in the United States ($n = 13$). Regional- and rural-specific cohorts were the focus of eight articles, 12 had a mix of locations and five were unspecified. When considering the context of the COVID-19 pandemic, just over one third of the studies were conducted after the onset of the pandemic ($n = 7$) and the remaining studies ($n = 15$) had completed their data collection prior to onset of the pandemic.

In terms of specific disability focus, by far the majority of studies targeted autism ($n = 8$). Of the remaining studies, one addressed each of Parkinson's disease, Intellectual Disability and Developmental Disability. The remaining 11 studies were inclusive of multiple diagnoses and were focused on perspectives of a specific geographical area or those accessing a specific service.

3.1 | Thematic analysis

The scoping review identified seven themes (challenging the status quo, moving from hands on to coaching, integration of therapy into everyday environment, support network of collaboration and coordination, resourcing and upskilling, financing and hybrid models) presented below and described in more detail under subheadings corresponding to research questions 1 and 2.

3.1.1 | Challenging the status quo

Organisational requirements

The dominant perception of delivering services through teletherapy assumes sessions are a direct translation of in-person therapy via a technological medium. The expectations created by this mindset include anticipating or judging success in reference to in-person therapy parameters or biasing suitability compared to in-person capabilities. While the intent to provide targeted intervention to clients is consistent; the remote delivery of teletherapy requires service users to appreciate the differences and the learning curve of familiarising to a new method of therapy delivery.

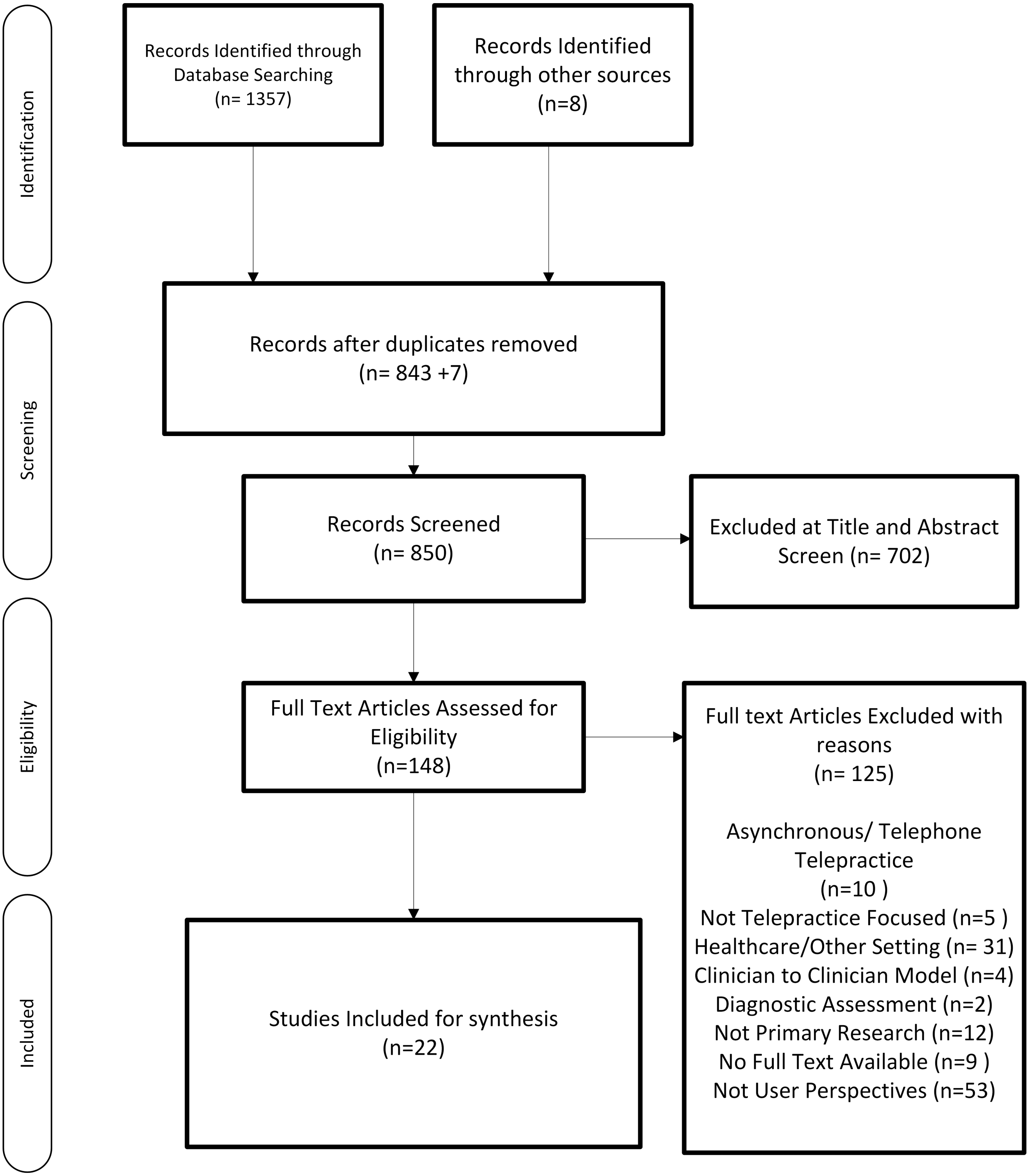

FIGURE 1 PRISMA flowchart

A marked difference in perspectives regarding teletherapy was noted between recipients versus providers, as well as those who had engaged via teletherapy and those who were yet to. An additional layer of complexity is derived from the perceptions of these groups with regards to the knowledge and beliefs of the opposing cohorts. Preconceptions held by those yet to experience teletherapy or views concerning about this cohort are widely regarded as a fundamental barrier to uptake (Cole et al., 2019). Studies have described these preconceived biases (Lawford et al., 2021), citing assumptions that teletherapy is a poor alternative to face to face (Iacono et al., 2016; Salomone & Maurizio Arduino, 2017; Yang et al., 2021) and that service providers believe clients would not choose teletherapy prior to

TABLE 2 Descriptive characteristics

Article	Age	Diagnosis	Geographical region	Intervention type	Methodology	Pandemic	Platform	Regionality	Sample size
Akamoglu et al. (2018)	Paediatric (3-18 yrs)	Not Applicable	USA	Speech Language Pathology	Qualitative	Pre	Unspecified	Mixed	5–15
Ashburner et al. (2016)	Paediatric (2.9–6.9 yrs)	ASD	Australia	Early Intervention	Qualitative	Pre	WebEx	Regional/Rural	5–15
Cole et al. (2019)	Paediatric (Unspecified)	Early Intervention	USA	Early Intervention	Qualitative	Pre	Misc	Mixed	>50
Daczewitz et al. (2020)	Paediatric (2-5 yrs)	Other	USA	Speech Language Pathology	SCED	Pre	Skype	Regional/Rural	<5
Douglas et al. (2021)	Paediatric (Single Case 4yo)	Other	USA	Assistive Communication Device	SCED	During/ Post	Zoom	Unspecified	<5
Gardner et al. (2016)	All	Not Applicable	Australia	Not Applicable	Qualitative	Pre	Misc	Regional/Rural	5–15
Hermes et al. (2021)	Paediatric (School age)	Not Applicable	USA	Speech/OT	Qualitative	During/ Post	Misc	Regional/ Rural	>50
Hines et al. (2019)	Paediatric (5–8.5 yrs)	ASD	Australia	Speech/OT	Mixed Methods	Pre	Skype	Regional/Rural	<5
Iacono et al. (2016)	Paediatric (up to 6 yrs)	ASD	Australia	Not Applicable	Qualitative	Pre	Misc	Regional/Rural	25–50
Johnsson and Bulkeley (2021b)	All	ASD	Australia	Varied	Mixed Methods	During/ Post	Misc	Mixed	>50
Johnsson et al. (2019)	Paediatric (2-12 yrs)	ASD	Australia	Varied	Qualitative	Pre	Zoom	Regional/Rural	16–25
Lai et al. (2020)	Adult	Parkinson's Disease	USA	Exercise Individual	Mixed Methods	Pre	Custom	Unspecified	16–25
Lawford et al. (2021)	All	Not Applicable	Australia	Varied	Quantitative Survey	During/ Post	Misc	Mixed	>50
Murphy et al. (2021)	Paediatric (0-21 yrs)	Not Applicable	USA	Varied	Quantitative Survey	During/ Post	Misc	Mixed	>50
Pickard et al. (2016)	Paediatric (1.5-6 yrs)	ASD	USA	Behavioural/Social Skills	Mixed Methods	Pre	Skype	Unspecified	25–50
Ptomey et al. (2017)	Paediatric (11-21 yrs)	IDD	USA	Exercise Group	Mixed Methods	Pre	Zoom	Mixed	25–50
Renda and Lape (2018)	Adult	Other	USA	Occupational Therapy	Pre/Post	Pre	Doxy.me	Unspecified	<5
Salomone and Maurizio Arduino (2017)	Paediatric (up to 6 yrs)	ASD	Italy	Varied	Quantitative Survey	Pre	Unspecified	Regional/Rural	25–50
Sutherland et al. (2021)	Paediatric (Unspecified)	Misc	Australia	Speech Language Pathology	Mixed Methods	During/ Post	Coviu	Mixed	16–25
Wallisch et al. (2019)	Paediatric (up to 7 yrs)	ASD	USA	Occupational Therapy	Qualitative	Pre	Zoom	Unspecified	5–15
White et al. (2021)	All	ASD	USA	Varied	Quantitative Survey	During/ Post	Misc	Mixed	>50
Yang et al. (2021)	Paediatric (up to 9 yrs)	Misc	USA	Varied	Qualitative	Pre	Misc	Mixed	25–50

Abbreviations: ASD, Autism spectrum disorder; IDD, intellectual and developmental disability; SCED, Single-case experimental design; Intervention Type, Varied (multiple allied health therapies included, catering to individual participant needs); Platform, Misc (multiple platforms utilised by participants).

giving them the opportunity (Cole et al., 2019; Iacono et al., 2016; Sutherland et al., 2021).

The available evidence recognised the presence of preconceived ideas and advocate for a public awareness strategy (Cole et al., 2019) with a staged, two prong approach, to support implementation of teletherapy. Service providers were represented as the gateway to teletherapy therefore accessibility to available evidence is suggested by Cole et al. (2019) and Iacono et al. (2016) as a method of allaying doubts over the quality, efficacy and fears of the unknown (Hermes et al., 2021; Iacono et al., 2016). Supporting practitioner training (Hermes et al., 2021) to build knowledge and experience (Sutherland et al., 2021) and adaptation strategies to translate interventions to teletherapy (Johnsson & Bulkeley, 2021b) to increase familiarity has been attributed to improved self-efficacy of providers (Johnsson & Bulkeley, 2021b; Sutherland et al., 2021).

Target participant considerations

The personal beliefs and self-efficacy are formed through the accumulation of individual previous experiences opportunities, social context, cultural norms and biases, perception of personal capabilities, feedback of experiences from personal networks and public awareness. Each user is guided by and judged on some or all factors, impacting their opportunity and likelihood to engage in teletherapy. For example, Salomone and Maurizio Arduino (2017) described correlations between recipient interest in accessing therapy via teletherapy and perceptions of their own self-efficacy and confidence in internet use.

The evidence shows that, if service providers can advocate for and successfully offer a trial of teletherapy to service users (Hines et al., 2019; White et al., 2021), the opportunity to gain experience has been shown to create or strengthen positive beliefs in service users (Gardner et al., 2016; Hines et al., 2019; Lai et al., 2020) who subsequently recommend teletherapy to others (Hines et al., 2019) additionally a portion of those who had been given the opportunity to trial it, requested or desired to continue to access it (Johnsson & Bulkeley, 2021b; Lawford et al., 2021; Ptomey et al., 2017).

Historically access to teletherapy was offered in lieu of in person interventions and stemmed from geographical barriers such as lack of available alternatives and decreased travel burden (Hines et al., 2019; Johnsson et al., 2019). The increased teletherapy uptake following onset of the COVID-19 pandemic resulted in an acknowledgment that metropolitan and suburban service users are also motivated to access teletherapy. Salomone and Maurizio Arduino (2017) acknowledged that metropolitan residents showed motivation to use teletherapy prior to the pandemic, but these potential participants had not been eligible due to not meeting minimum distance requirements.

3.1.2 | Moving from hands on to coaching

Organisational requirements

Delivering Allied Health interventions via teletherapy requires a different approach than traditional in-person intervention due to the change in parameters and dynamics of the interaction. A major benefit highlighted in the review articles describes the repositioning of the therapist as the facilitator or collaborator who uses coaching strategies via teletherapy to empower and upskill clients and families to achieve their goals (Ashburner et al., 2016; Cole et al., 2019; Renda & Lape, 2018). This is consistent with evidence-based person centred and capacity building practices which have long been recognised as the gold standard approach in the field of disability (Ekman et al., 2011).

In a study conducted by Ashburner et al. (2016), an Autism specialist identified that during in-person sessions with regional families, she felt the pressure to achieve 'as many goals as possible' (Ashburner et al., 2016, p. 7) whereas conducting sessions via teletherapy provided more time and opportunity to use coaching techniques to teach the families in regional areas.

A major barrier to the uptake of teletherapy occurs when service users perceive a need for therapy to be delivered using a hands-on approach delivered by a qualified therapist. (Sutherland et al., 2021; Yang et al., 2021). However, respondents anticipated teletherapy would be preferred if there was no alternative (Yang et al., 2021).

Target participant considerations

With the service user and provider physically separated during a teletherapy session, there is a significant shift in how the parties perceive their respective role in accessing or providing the service (Cole et al., 2019). Studies reflected that the remote location of the clinician engenders a culture of collaboration and sharing of knowledge to support therapy implementation (Renda & Lape, 2018). A mother of a child receiving therapy remotely from an Autism Specialist described the change in her role from an outsider observing the therapy session, to becoming actively involved and enhanced her feelings of empowerment (Ashburner et al., 2016).

3.1.3 | Integration of therapy into everyday environment

Organisational requirements

If the therapist is not physically present to implement an intervention via teletherapy, the question turns to how are therapies being implemented and who is involved? Teletherapy expands the potential inclusiveness of therapy sessions and provides the opportunity to upskill additional family members or support persons to assist in implementing intervention strategies.

Flexibility of timing, location and number of people present can assist with the inclusion of full-time working parents (Daczewitz et al., 2020), siblings (Douglas et al., 2021; Hines et al., 2019), teachers and local service providers (Ashburner et al., 2016; Hines et al., 2019; Johnsson et al., 2019). A study by Hines et al. (2019) noted four sessions for one service user were attended by their mother and older siblings who participated so they could help carry out therapy strategies as their mother worked full time and was undertaking further studies. A second study by Douglas et al. (2021)

assessed the use of teletherapy to teach a family how to communicate with their daughter/sister who uses an assistive communication device. All family members including the parents and two siblings aged under 10 years felt more confident to use the device and initiated more conversations with their daughter/sister following the study (D'Agostino et al., 2020). Conversely, the increase in active participation from families and support people during teletherapy sessions can be viewed negatively for some families who feel they do not have capacity to be actively engaged due to demands such as caring for multiple children, work or single parenting (Murphy et al., 2021).

Teletherapy enables intervention delivery, in a variety of formats including group interventions (Ptomey et al., 2017), individual direct interventions for adults (Lai et al., 2020) and children (Hines et al., 2019), direct to remote clinic and multidisciplinary sessions to multiple simultaneous locations (Ashburner et al., 2016; Johnsson et al., 2019).

Target participant considerations

The familiarity of your surroundings brings a sense of comfort and increased confidence (Gardner et al., 2016). Teletherapy harnesses these advantages to further promote integration of therapy strategies into daily living for service users and their families. This was evident in enabling families and adolescent service users to participate in a group exercise program run by Ptomey et al. (2017) who felt more comfortable exercising in a group from their home and enabled more independence from their parents.

The teletherapy exercise program run by Lai et al. (2020) noted a major barrier to accessing exercise sessions for people with Parkinson's disease was travel, with participants reflecting that therapy assistance provided via teletherapy increased their confidence to exercise independently using equipment that was set up in their home. Providing services remotely may be utilised to ensure staff and service user safety and comfort in situations where face-to-face interventions posed unacceptable levels of risks (unsafe home environment, vulnerability to infection, inclement weather) (Cole et al., 2019).

3.1.4 | Support network of collaboration and coordination

Organisational requirements

Teletherapy enables a service user to create a virtual support network, thereby widening their access to services and care to beyond their local region. The capabilities of this network extends connections beyond people with clinical or lived experience in the immediate vicinity, and provided the opportunity for improved collaboration, coordination and support. The virtual support network enabled connections for social contact in groups of people with similar lived experiences (Ptomey et al., 2017), with specialists with expert knowledge (Hines et al., 2019; Johnsson et al., 2019), and provided greater choice of service provider and collaboration between providers (Ashburner et al., 2016; Cole et al., 2019).

Inherently, for some members of the disability community, accessing services can be complex, particularly with coordinating and attending a myriad of appointments and services (Ashburner et al., 2016; Renda & Lape, 2018). Connection via teletherapy can reduce the complexity of navigating services as it has the ability to create a more collaborative and cohesive support team (Johnsson et al., 2019; Renda & Lape, 2018). For example, the local service provider and remote specialists can conduct joint sessions enabling real-time education and upskilling to improve confidence of recipients and the local providers to facilitate ongoing supports (Johnsson et al., 2019).

Target participant considerations

Motivation to access teletherapy services has been linked to its impact on decreasing stress on families (Salomone & Maurizio Arduino, 2017) by reducing the need to plan and coordinate attendance thereby placing families in an optimal capacity to "pay full attention… (to) take on board information" (Ashburner et al., 2016, p. 9) and implement new concepts and therapy strategies (Daczewitz et al., 2020).

The stress of navigating disability services can impacts on mental health especially creating anxiety and is a significant factor for many recipients and families (Ashburner et al., 2016; Iacono et al., 2016; Johnsson & Bulkeley, 2021b). The reduced stress of accessing therapy through teletherapy was highlighted specifically in two studies (Ashburner et al., 2016; Gardner et al., 2016).

Conversely, to enable access to this virtual support network there is a base level of digital access and competency required, with many families inherently excluded due to socioeconomic and digital literacy inequalities (Cole et al., 2019).

3.1.5 | Resourcing and upskilling

Organisational requirements

There are multiple resourcing and upskilling investment considerations identified within the literature, which may be required for service users to experience a successful teletherapy introduction. These considerations may involve among others, an initial assessment and consideration of the required resources, change management plan, procurement of physical resources, training and upskilling requirements of staff and service users. Failure to appropriately address these considerations may result in unsuccessful or unsatisfactory teletherapy experiences.

Addressing potential barriers and supporting successful transitions to teletherapy through change management strategies is a strong theme across the literature (Hermes et al., 2021; Hines et al., 2019; Johnsson & Bulkeley, 2021b; Johnsson et al., 2019; Sutherland et al., 2021). Evidence shows that preliminary discussions with key stakeholders regarding their needs followed by planning and assessment of resource requirements (Gardner et al., 2016) prior to implementation are crucial to the change management process, however, may have been rushed or skipped altogether due to lack of time available to plan in response to the more recent global pandemic (Johnsson & Bulkeley, 2021b). A pertinent example of a needs assessment to reduce barriers to uptake was highlighted by Cole et al. (2019), where a service provider noted that, despite having appropriate technology to provide teletherapy, they had no office space to complete the sessions so conducted it in their car.

To facilitate sustained utilisation of teletherapy, provision of supports and resources are required which are sufficiently in advance, ongoing and available for all service users, to facilitate sustained utilisation of teletherapy (Hermes et al., 2021; Johnsson & Bulkeley, 2021b). The most significant resource burden in implementing teletherapy for service providers is allocating sufficient time to create and deliver education and training (Hermes et al., 2021), gain experience (Sutherland et al., 2021), and plan and convert interventions to online delivery (Johnsson & Bulkeley, 2021b). The reality of crisis management and transition to teletherapy during the onset of the COVID-19 pandemic, was evident in the lack of time to build and plan sustainable systems and processes supported by appropriate resourcing. The decision for the majority of practitioners in Sutherland et al. (2021) to revert exclusively to in-person care based on views that teletherapy is a last resort may be attributed to a contextual lack of time and support to prepare and acclimate.

Multiple articles described baseline computer skills impacting on teletherapy confidence (Ashburner et al., 2016; Gardner et al., 2016) and Salomone and Maurizio Arduino (2017) explicitly described the need for educational resources to improve self-efficacy and uptake for recipients. Practitioners cited a lack of experience impacted on their confidence and created hesitancy to provide services via teletherapy (Iacono et al., 2016; Sutherland et al., 2021). Reduced confidence by recipients in commencing teletherapy sessions has additionally been attributed by Yang et al. (2021) with a perceived increase in responsibility on families caused by the physical absence of therapist.

Target participant considerations

The intersectional nature of the disability community results in members potentially identifying with multiple marginalised groups in society such as migrant, LGBTQI+, persons of colour or indigenous heritage and lower socioeconomic status. This potential intersectionality of multiple minority populations may increase likelihood of marginalisation and inadequate resourcing to access teletherapy, resulting in exclusion and increased disadvantage. The barriers to may include lack of physical hardware and internet or present as limited capacity to learn and engage in teletherapy.

Experiencing lower self-efficacy, lack of experience and limited digital literacy has been described as creating increased barriers to cope and troubleshoot problems in teletherapy sessions (Cole et al., 2019; Lai et al., 2020); whereas, engaging with regular technology use in daily life facilitated successful use (Gardner et al., 2016). Service users interviewed by Ashburner et al. (2016) indicated fluctuations in family context and times of crisis could adversely affect capacity to navigate the technology required to participate. Families and practitioners who had developed a strong relationship based on positive rapport enabled service users to 'put in the time' (Ashburner et al., 2016, p.9) otherwise they may have reached their coping threshold and given up.

Access to teletherapy is further constrained for minority groups such as those requiring an interpreter or those with limited access to technology or internet as they are often excluded by service providers and other service users or from academic research based on inclusion criteria or assumptions made about this group (Akamoglu et al., 2018; Ashburner et al., 2016; Cole et al., 2019; Hines et al., 2019; Johnsson & Bulkeley, 2021b; Lai et al., 2020; Ptomey et al., 2017; Yang et al., 2021). Those who do not have access to the internet are at present often excluded from teletherapy interventions and research studies (Hines et al., 2019; Lai et al., 2020). The exclusion issue was raised in a study by Yang et al. (2021) describing 27% (*n* = 10) of their participants who would otherwise be eligible for teletherapy early intervention services, however, could not participate due to not having access to the internet. The survey by Lawford et al. (2021) found that in Australia only 45% of recipients owned a device suitable to access teletherapy prior to funds being included in their disability plans enabling purchase of a device in response to the COVID-19 pandemic.

Addressing social and contextual factors that exacerbate disadvantage, such as the need for an interpreter, required solutions to be found at the service model design level to support providers to equitably deliver teletherapy (Johnsson & Bulkeley, 2021b). Technological support staff for all service providers and recipients could decrease inequity and improve capacity for all to successfully complete sessions via teletherapy (Iacono et al., 2016).

3.1.6 | Financing

Organisational requirements

Appropriate resource allocation and associated financial commitment are fundamental cornerstones of implementing innovations such as teletherapy. Financial expenditure such as the initial capital outlays and the opportunity cost of training staff are potentially balanced by savings in improved efficiencies and increased outreach to regional areas.

There were several opportunity costs identified by service providers associated with the implementation of teletherapy including unbillable time spent on the creation of appropriate resources, time spent on training and upskilling and increased preparation time and effort in setting up and integrating teletherapy as cited in Hines et al. (2019) and Johnsson et al. (2019).

Barriers to adoption included managing the process of change, (Johnsson et al., 2019), increased planning and preparation time due to (Johnsson et al., 2019), the perceived difficulty in providing specific interventions via teletherapy (Ashburner et al., 2016; Johnsson & Bulkeley, 2021b; Yang et al., 2021) and the need to transition to a coaching model (Cole et al., 2019).

This initial outlay in costs is anticipated to decrease over time (Johnsson et al., 2019), with the overall benefits made in cost savings expected to be ongoing. Providers felt teletherapy positively impacted on the organisation from a financial and productivity perspective by gaining greater efficiencies through decreased travel time and increased hours available to provide services (Cole et al., 2019). In turn, these gains enabled a decrease in waitlists and wait times for interventions (Johnsson et al., 2019).

3.1.7 | Target participant considerations

The impact of transitioning to teletherapy may be relatively insubstantial for the majority of society with the means to purchase a tablet or laptop, and consistently afford high speed internet. However, those who exist outside this majority may be excluded from beneficial access to services or experience excessive financial pressure.

Out of pocket expenses are incurred by service users in acquiring the base level of technology required to facilitate a teletherapy session making this option cost prohibitive for some families, further disadvantaging lower socioeconomic groups (Cole et al., 2019; Iacono et al., 2016; Sutherland et al., 2021). For those living in rural and remote areas the cost of internet is often comparatively higher for lower quality services (Iacono et al., 2016).

An additional factor described by service providers in Yang et al. (2021) was the rapid progress of technology resulting in expensive devices becoming outdated and incompatible with different systems. Technological barriers can be viewed as insurmountable by service providers and management who then assume recipients are ineligible for teletherapy without pursuing any alternate solutions (Cole et al., 2019) contributing to widening and prolonging the divide.

In the Johnsson et al. (2019) study, recipients identified a direct correlation between decreased travel time for providers and increased funding available for direct therapy, which is significant for regional and remote families. In terms of teletherapy recipients, cost savings were made due to a reduction in the need to travel (Ashburner et al., 2016; Daczewitz et al., 2020; Johnsson & Bulkeley, 2021b) pay for accommodation (Gardner et al., 2016), time spent on coordination and organisation (Wallisch et al., 2019) as well as work time lost (Salomone & Maurizio Arduino, 2017).

3.1.8 | Hybrid models

Organisational requirements

The prevailing sentiment of those whose experiences are explored in the included articles is not how does one build a teletherapy model to supersede in-person therapy delivery, but how do service users want to access teletherapy as an additional layer of flexibility (Ashburner et al., 2016; Gardner et al., 2016; Johnsson & Bulkeley, 2021b; Lawford et al., 2021; Yang et al., 2021). Service user participants interviewed by Gardner et al. (2016) were 'open to trying therapy via ICT…potentially needing in-person contact to complement the ICT sessions' Gardner et al. (2016, p. 120), echoing the idea described by many articles that with appropriate support a hybrid model would be perceived as optimal. Multiple studies have noted service users have indicated an intention to continue to use teletherapy, predominantly in conjunction with face to face (Hines et al., 2019; Johnsson & Bulkeley, 2021b; Johnsson et al., 2019).

Target participant considerations

Individuals benefit most from services catered to their individual needs and contexts therefore participants should be supported in accessing teletherapy and addressing social and cultural contexts which may have created barriers. Providers can support individuals to improve access and decrease potential inequities; however, an acknowledgement is needed that despite addressing social or cultural barriers, teletherapy may not be suited to all individuals.

As with all therapy provision, the service delivery requires personalisation to each individual recipient (Gardner et al., 2016; Johnsson et al., 2019) with some methods of delivery such as direct therapy via teletherapy having been identified as not suited for particular clients due to specific impairments (Akamoglu et al., 2018) or group interventions impacted by communication difficulties (Lawford et al., 2021).

Challenges are evident in the current perception of teletherapy, where those with the highest need to access teletherapy may also be perceived as having insurmountable barriers of cost, skill or language, all of which contribute to the systemic inequality of current service models (Cole et al., 2019; Johnsson & Bulkeley, 2021b; Yang et al., 2021).

4 | DISCUSSION

Each identified theme addresses different facets of the design and implementation strategy required to successfully address operational requirements and target participant considerations to successfully promote sustained and equitable utilisation of teletherapy. As discussed by Kho et al. (2020) in a scoping review addressing change management strategies in telehealth, frequently in the rush for it to be integrated into health settings, due consideration is not made to the operational requirements or Target Participant considerations required to achieve successful and long-term implementation. The evidence outlined within the above thematic analysis demonstrates a corresponding lack of explicit implementation planning and change management strategies, and the need for these to occur for improved use and experiences of teletherapy into the future. The question remains, whether adequate solutions and resources will be invested, and what enduring barriers will remain following implementation of a considered and sustainably designed teletherapy model? There is the need for implementation strategies to be iteratively reviewed and remain flexible to address both pre-existing and emerging barriers to teletherapy, and as those barriers potentially become obsolete to be able to address new and emerging challenges.

A consideration when addressing operational requirements of teletherapy delivery is outlined in the work by Abimbola et al. (2019), which discusses the differentiation between teletherapy as a mode of service delivery and the message (intervention) delivered via teletherapy. In order to successfully identify barriers, design and implement facilitators and measure the impact, due consideration must be made as to whether the target is the delivery mode or the intervention it delivers. For example, translation of interventions from traditional in person approaches to teletherapy modes of delivery need to address the purpose of the session, and identify whether certain interventions will be deemed inappropriate to deliver via teletherapy and on what basis. Whereas strategies such as those which address the systemic context of users, inequities in access and levels of self-efficacy pertaining to teletherapy use are barriers which need to be overcome by specific resourcing and interventions and separately from the success of an intervention provided via teletherapy. If points of intersection of operational design and implementation with the systemic context of Target Participants are identified and responded to, teletherapy may be a desired delivery mode sustainably integrated into allied health intervention provision.

Multiple service users across the included articles described how the interventions they had received via teletherapy had positively benefited them and their families, with Murphy et al. (2021) describing a positive correlation between satisfaction with services provided to their child during the COVID pandemic with access to teletherapy from home (Theme: Integration of therapy into Everyday Environment). The increased comfort and decreased stress was identified as a method of improving capacity to engage in interventions (Ashburner et al., 2016; Daczewitz et al., 2020; Gardner et al., 2016; Salomone & Maurizio Arduino, 2017), to which are correspondingly attributed to effectiveness of teletherapy (Theme: Support Network of Collaboration and Coordination).

Service users and providers alike identified cost savings or efficiency gains as significant benefits of teletherapy within the Financing theme. The perceptions of regional and remote users in Ashburner et al. (2016) regarding the cost of funding a specialist to visit their local community as prohibitively expensive correlates with the cost analysis comparison completed by Lindgren et al (2016) between teletherapy at home, teletherapy in the clinic and in-person, in-home therapy. Both teletherapy alternatives were deemed less costly than in-home therapy, enabling a higher proportion of funds to be allocated to direct therapy provision. The availability of teletherapy assists in addressing the maldistribution of workforce towards metropolitan centres and provides effective access to specialist care in regional and remote areas (Johnsson et al., 2019) and potentially effective access to treatment interventions while on the waiting list for more intensive therapy. The service users in Wallisch et al. (2019) suggested therapy access while on the waitlist for in-person services would have been the most valuable opportunity to them for receiving teletherapy support.

Specific funding model design and workforce characteristics impacting on the experience of teletherapy are significant issues acknowledged by the authors. However, with the vast differences in system structure and funding models present within and between countries, these policies and framework based considerations were not explored within the current scoping review as they were deemed higher level concepts requiring specific investigation and discussion. The structure and function of disability policies and their impacts on teletherapy access and experiences are acknowledged as important factors warranting future studies. Murphy et al. (2020) discussed the different methods of accessing allied health interventions in the context of disability service systems within the United States, noting children accessing services in school were the least likely to have access to teletherapy, and were the least satisfied with their service provision. The Australian funding model was referenced by Akamoglu (2018) and Johnsson (2019) as negatively impacting participants in rural locations as a lack of local workforce causes funding allowances to include travel and accommodation for visiting providers; this impact is decreased by the use of teletherapy and warrants targeted teletherapy service model design.

As described within the thematic analysis of the theme Hybrid Models, teletherapy is viewed as an additional and complementary alternative to in-person therapy sessions, which support the development of different skills and needs while not completely substituting the capabilities of in-person intervention sessions. The ideas provided by this scoping review are supported by work in the healthcare sector (Camden & Silva, 2021) and are indicative of the need for hybrid models whereby teletherapy part of a suite of service delivery modes to provide safe and optimal care at the right time, in the right place for each individual.

There is a vast spectrum of needs and views within the disability community with teletherapy offering users a choice that may involve compromising on certain aspects of in-person service delivery such as physical contact, in order to gain benefits such as increased flexibility, decreased cost, improved access and better integration between daily life goals and therapy interventions. The majority of experiences from recipients accessing therapy via teletherapy are positive (Ashburner et al., 2016; Gardner et al., 2016; Hines et al., 2019; Johnsson & Bulkeley, 2021b; Johnsson et al., 2019; Lai et al., 2020; Murphy et al., 2021; Ptomey et al., 2017; Renda & Lape, 2018; Wallisch et al., 2019), and do not generally align with assumptions made by recipients prior to utilisation (Salomone & Maurizio Arduino, 2017; Yang et al., 2021), or preconceptions of providers regarding the recipients' likely response to teletherapy (Sutherland et al., 2021) as explored within the first theme Challenging the Status Quo. The malalignment of views identifies an opportunity for implementation and change management strategies to address the above knowledge gap, which is addressed in theme of the Resourcing and Upskilling.

Empowering users is often touted as an advantage of teletherapy utilisation which is not necessarily identifiable or defined through outcomes or perceptions of users (Lynch, 2015). The included articles indicated direct and indirect instances of service users feeling empowered through the support, coaching and education provided by therapists (Theme: Changing from Hands on to Coaching) to enable independent implementation of therapy strategies (Johnsson & Bulkeley, 2021b; Wallisch et al., 2019). Recipients perceived this as a differentiating factor compared to traditional in-person service provision (Ashburner et al., 2016; Ptomey et al., 2017; Renda & Lape, 2018), with providers agreeing their focus is to coach and educate rather than implement the interventions traditionally using hand-on approaches (Ashburner et al., 2016; Cole et al., 2019; Gardner et al., 2016; Wallisch et al., 2019). This aligns with findings of Rosenbaum et al. (2021) who described in paediatric healthcare telerehabilitation, that teletherapy encouraged a hands-off approach which was viewed positively by both service users and providers.

4.1 | Limitations

An acknowledgement must be made in the thematic analysis and assumption of meaning, the experiences described are viewed through a series of lenses. The layers of interpretation include the reflection of experiences by direct users, or in some cases the reflection of service providers regarding recipient experience, which have passed through the lens of the analytical discourse provided and curated by each individual study's authors, prior to interpretation within the context of the scoping review analysis. The recurrent interpretation of experience has the potential to dilute the ability of the scoping review to divine meaning which accurately reflects user experience. However, the scoping review thematic analysis reflects how academic literature currently depicts the teletherapy experiences of service users, forming a platform for comparison with future research which poses complementary questions directly to teletherapy users from the disability community.

Additional limitations identified within the included articles relates to potential lack of generalisability due to variation in system setup across countries and how this impacts on those accessing or delivering services. Additionally, the predominance of paediatric and Autism studies which has the potential to bias the perspective and not accurately represent themes as they impact adult and other disability cohorts. Both limitations are a representation of current available literature and encourage further investigations into the experiences of adult recipient cohorts as well as how internationally diverse cohorts of service users experience teletherapy, and those with a wider range of diverse disability.

The exclusion of full texts not available in an English language format, and the search strategy only inclusive of English language predominant journal databases are methodological limitations. These decisions may have impacted on the inclusion of journal articles from countries in locations such as continental Europe and Asia, however, a scoping review aims to collect evidence to inform further avenues of enquiry in contrast to a systematic review whose aim is judgement based on an exhaustive collection of all available evidence.

A limitation of the literature identified by the theme Resourcing and Upskilling, acknowledges that there are many parts of society who cannot access teletherapy, however, may be able to in the future. They are excluded from having their views and wishes known and are potentially falling further behind in acquiring the necessary digital literacy skills to enable access. If 27% of the eligible participants in Yang et al. (2021) could not access services due to lack of internet, it is therefore unknown whether they have services available, whether there were any alternatives provided and what their perspectives on teletherapy are.

4.2 | Future directions

While all included studies addressed the need to identify and focus on barriers to accessibility and sustainability of teletherapy for people receiving community-based disability services, there are currently no articles available to the authors which described an evaluation of teletherapy delivery grounded in implementation science. These avenues of investigation have the potential to integrate strategies discussed within this scoping review to facilitate better access for users. There is a need for the design and implementation of disability specific teletherapy delivery modes with objectively measured outcomes; thus, leading to an evidence base which assists in improving user experience and uptake. Additional areas with a dearth of literature include the experience of people who require an interpreter, as multiple articles noted English as a second language being a significant barrier to teletherapy use (Cole et al., 2019; Yang et al., 2021).

As an alternative to a solution focused strategy to address marginalisation of portions of the population currently unable to access teletherapy, further investigation is required into a needs assessment and establishing what the needs of disadvantaged populations are which must be addressed to enable access. It is unlikely one singular strategy or a broad response would be capable of achieving equity across disparate individual Target Participant contexts. And from a provider perspective, what are optimal and preferred methods of education and upskilling to support the use of teletherapy, coupled with what knowledge deficits do they prioritise in commencing teletherapy service provision. Provisional evidence from interviews conducted by the authors with providers currently practicing in Australia, indicated only 1–13 participants had any formal University training in Teletherapy delivery (Benz, unpublished). From a policy perspective a lack of guidelines and supports has been identified as a major barrier to organisations initiating teletherapy services (Johnsson & Bulkeley, 2021a).

5 | CONCLUSION

Teletherapy is viewed as a valuable mode of service delivery by service users across a variety of formats and across the spectrum of needs in the disability community, providing benefits which differentiate from traditional in-person service delivery. The scoping review identifies a strong need from recipients to trial teletherapy and experience in-person to facilitate understanding of how it can best suit an individual. More than being viewed as an alternative to in-person services, teletherapy is viewed by users as better suited as a complementary service with the flexibility of hybrid model opportunities valued above exclusive use of one over the other.

The scoping review was completed to provide a summary of current available evidence on perspectives from service users to guide future service delivery design. Valuable insights into potential strategies to improve implementation of future delivery are outlined for potential further research. Current evidence does not support definitive conclusions regarding best practice for teletherapy service model design or implementation, however, does identify a need and demand from users for services such as teletherapy be available equitably and into the future.

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DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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4.2 Journal Article Summary Infographic

Telepractice Research Project
A Summary of publications on Telepractice User Experiences

This is a **graphic summary** of an article which looked at what other researchers have published about experiences using telepractice for therapy in disability services. The article is part of the **Telepractice Research Project** between Rocky Bay and Curtin University.

What we looked for:

Research Articles published in the last 5 years describing customer and clinician experiences of using telepractice (videocall) for disability based therapy interventions (physio, OT, speech etc.)

Where we looked:

Searched in 5 online libraries

What we found:

1365 results

22 articles included

Findings

We **split the information** we analysed into two categories, the first was things that impact **the people** trying to use telepractice, and the second was things that impact **the organisation** introducing telepractice.

Majority of customer experiences with telepractice are **positive**

Telepractice is viewed as a complementary way of delivering therapy in a **flexible hybrid model instead of a replacement** for face to face

Customers identified by using telepractice it **decreased stress and** increased their capacity to engage and participate in sessions

Telepractice delivery is best suited to a **coaching style** of therapy intervention strategy

Preconceptions of customers and clinicians do **not align** with actual experience

Customers may **not be offered** telepractice or **refuse** due to assumptions about telepractice that are often unfounded

More information is available in the full article, to find the article online and in PDF follow the QR code or type the DOI link (below) into your internet browser, if you have any questions feel free to email cloe.benz@rockybay.org.au.

Benz, C., Norman, R., Hendrie, D., Welsh, M., Huntley, M., & Robinson, S. (2022). Use of Teletherapy for allied health interventions in community-based disability services: A scoping review of user perspectives. Health & Social Care in the Community, 00, 1–15. https://doi.org/10.1111/hsc.14105

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4.3 Literature Update

An updated search of the scoping review was completed to review any relevant publications released from the original search date up to January 2024, in order to assess if any new articles deviate from or supports the original findings. The repeated search resulted in an additional eleven articles, with their descriptions included a replica of the original scoping review descriptive characteristics table below. Most notably all additional articles were conducted post the onset of COVID-19 and none were set in exclusively rural settings. These articles demonstrate a wider geographical spread with two articles from South America, one from Africa, United Kingdom and Australia, in addition to the six from North America (USA/Canada).

The scoping review update identified significant correlations between the additional eleven articles and the original scoping review themes (challenging the status quo, moving from hands on to coaching, integration of therapy into everyday environment, support network of collaboration and co-ordination, resourcing and upskilling, financing and hybrid models), as well as one additional theme identified as *COVID tension*. The additional theme *COVID tension* is presented below, followed by a brief review of each of the original themes referencing the additional publication findings.

4.3.1 COVID TENSION

Of the original scoping review articles only seven were post the COVID-19 pandemic onset, these articles comprising of just under a third of the included publications were all completed at or very close to the initial pandemic wave. The updated scoping articles were exclusively conducted and published post-pandemic onset, and this created a sense of tensions and stress in the article findings which replicated the emotional climate of the time. The presence of stress and pressure was explicitly mentioned multiple times throughout the articles[156-158], with a participant in Angell et al[156] 'remembers feeling immense stress' during the period of telepractice implementation. This type of emotive language was absent in pre-pandemic published articles and demonstrated a marked change in the climate in which telepractice was being implemented.

Households were describing being busier during lockdowns of the pandemic and families were experiencing increased responsibilities such as schooling, childcare and working from home[158]. Thirty-nine percent of families from the Pinkerton et al[159] study set in the USA felt that their child was receiving lower quality services during the pandemic, with many feeling a sense of abandonment specifically from school services. However, telepractice was reported as increasing feelings of safety[156, 160] and provided an opportunity for continuity of care during the uncertainty of a pandemic[157].

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Article	Age	Diagnosis	Geographical Region	Intervention Type	Methodology	Pandemic	Platform	Regionality	Sample Size
Angell et al[156]	Paediatric (unspecified)	ASD	USA	Occupational Therapy	Qualitative	Post	Misc	Metropolitan	5-15
Cheung et al[160]	Paediatric (14-26mths)	Mixed	USA	Early Intervention	Qualitative	Post	Zoom	Mixed	5-15
Colón-Semenza et al[161]	Adult (unspecified)	Parkinson's Disease	USA	Physiotherapy	Mixed Methods	Post	Zoom	Metropolitan	<5
Fell et al[162]	Paediatric (unspecified)	ASD	USA/Canada	Mixed	Qualitative	Post	Zoom	Mixed	16-25
Filbay et al[163]	All	Mixed	Australia	Mixed	Qualitative	Post	Mixed	Mixed	5-15
Karrim et al[164]	Paediatric (2-12yrs)	ASD	South Africa	Speech Pathology	Qualitative	Post	Zoom	Mixed	5-15
Pinkerton et al[159]	Paediatric (<22yrs)	Mixed	USA	Mixed	Mixed Methods	Post	Unspecified	Mixed	>50
Portillo-Aceituno et al[157]	Paediatric (1-5yrs)	Mixed	Brazil	Early Intervention	Qualitative	Post	Unspecified	Unspecified	5-15
Pozniak et al[158]	Paediatric (unspecified)	Mixed	Canada	Early Intervention/ Speech Pathology	Qualitative	Post	Mixed	Mixed	26-50
Rosenfeld and Brooks[165]	Paediatric (0-16)	ASD	United Kingdom	Occupational Therapy	Qualitative	Post	Misc	Unspecified	>5
Sudati et al[166]	Paediatric (7-18)	Mixed	Brazil	Physiotherapy	Qualitative	Post	Misc	Unspecified	26-50

Table 2 - Descriptive Characteristics of Scoping Review Update

Many aspects of the other scoping review themes are impacted by this COVID-19 specific context, including a shared vulnerability of all being in this together and building emotionally supportive relationships to facilitate telepractice during the pandemic[156]. The pandemic appears to have added a level of complexity to the integration of telepractice into therapy provision, with one clinician describing the need to focus on emotional regulation for children and families during a situation of significant upheaval[156]. As such the updated analysis in the following sections integrates this added theme into each of the original scoping review themes.

4.3.2 CHALLENGING THE STATUS QUO

COVID-19 significantly challenged the status quo for telepractice use for a wide range of services including providing therapy to people with disability. While it was relatively uncommon to utilise telepractice for regular service delivery pre-pandemic, Angell et al[156] reported only four out of six hundred families declined to use telepractice in their pandemic context study. There was a general impression of surprise that telepractice was more effective than expected but continue to echo the sentiment that telepractice is not the same as in-person service delivery[161]. A difference which was repeatedly identified was the opportunity to provide more frequent but shorter sessions via telepractice[159, 161, 165], with Fell et al[162] noting that participants reported better retention of families.

The original scoping review noted the need for increased public awareness of telepractice[167], which was repeated by Portillo-Aceituno et al[157], who noted participants had no prior telepractice knowledge and Filbay et al[163] who suggested establishing expectations of telepractice to improve user experiences. For neurodivergent populations, Karrim et al[164] suggested using social stories to ease the transition to telepractice.

4.3.3 MOVING FROM HANDS ON TO COACHING

Utilising coaching strategies for telepractice delivery of therapy was explicitly discussed by all eleven additional scoping review articles. Articles described how coaching facilitated increased engagement from parents[159, 160, 166], however COVID-19 impacts on coaching included feelings of burnout for parent[157] and clinicians[156]. Parents described difficulties with taking on roles of parent, therapist and teacher[158, 159] as well as multitasking doing therapy while listening to the therapist[160], especially for more technical therapy modalities[163].

Further evidence has supported that telepractice supports families to become actively involved in their child's therapy[158, 165, 166], improving parent and child bonds[156], embedded therapeutic skills into daily life[160] and being the principal agents of change[158]. Positive facilitators of telepractice coaching included clear, structured and individualised instructions[160], however identified barriers including group session[162, 166], clinicians not having appropriate descriptive language[156] and parents struggling with insecurities, constructive criticism, feelings of guilt and responsibilities[156-158].

4.3.4 INTEGRATION OF THERAPY INTO EVERYDAY ENVIRONMENT

The discussion of increased flexibility and convenience of timing and location afforded by the use of telepractice remained consistent with the original scoping review articles[158, 160-162, 164, 166]. With the home environment providing a safe and comforting space[156], and enabling the opportunity to use what families have available to them for therapy[157, 158, 166] telepractice was viewed as better at assimilating therapy into family life. However, family life was often highlighted as an added complexity for therapy due to increased distractions[157, 158, 166], needing to try and create a routine around therapy to mentally prepare for a session[158] and the impact of parental regulation on a child's ability to regulate and participate[156]. These three difficulties were impacted by the emotional tension and restrictive contexts of the COVID-19 pandemic.

Further challenges existed regarding Autistic children being able to regulate while sitting at a screen[156, 159, 162], however one participant in an article by Rosenfeld and Brooks[165] described using gross motor and sensory activities during telepractice sessions as would be completed for in-person sessions. While task specific training to the home environment was viewed as a positive[161], considerable effort was required from parents and families to arrange the house to create a therapy appropriate space[158], minimise distractions and reposition the screen to keep the person in view[164].

4.3.5 SUPPORT NETWORK OF COLLABORATION AND CO-ORDINATION

The additional articles of the scoping review update predominantly built upon the concepts described in the original analysis of this theme and demonstrated them on a wider scale due to the surge in telepractice uptake throughout the pandemic. The need for therapists to provide a support network role for families was exacerbated by pandemic conditions[160], with open communication[156] and having more family members available at home[157, 162, 165] creating a collaborative environment for therapy to succeed.

4.3.6 RESOURCING AND UPSKILLING

The barriers caused by insufficient resources such as hardware and internet access remained consistent across the additional articles[158-160, 163, 166]. Poor digital literacy[158, 166] and the need for training[160], resources[159] and tech setup support[161] were all similarly mentioned as having a significant impact on successful telepractice.

As Angell et al[156] described, organisations were scrambling to make changes, which included the minimum viable product of telepractice with no readiness assessment, change management or intervention planning. This rapid integration of telepractice resulted in resource limitations in both technology and therapy specific items[157, 163]. Some families found it difficult to buy or prepare resources for sessions[160], and clinicians noted increased need for pre-planning of resources and communication with families to facilitate therapy intervnetions[165]. Time and practice may resolve a portion of these challenges[161], however a more concerted and systemic approach remains necessary for addressing inequity of access to telepractice.

4.3.7 FINANCING

Very minimal references to financial considerations of telepractice implementation were mentioned, which may be symptomatic of a system in which facilitating basic services became challenging. Angell et al[156] noted that initially hours of service being billed by therapists fell following the onset of the pandemic, which was attributed to fewer referrals received. Following the initial implementation of telepractice, attendance to sessions was better and number of sessions were increased through travel savings, these improvements however may have been indicative of a society largely restricted from leaving their house rather than a true indication of the impact of transitioning to telepractice.

For providers in lower income countries telepractice enabled a decrease in cost of services with decreased travel, allowing for improved access for lower income families[164], however the lowest income families suffering from extreme socio-economic vulnerability remained largely excluded[166].

4.3.8 HYBRID MODELS

Throughout the transition to exclusive telepractice use for a large portion of the participants in the additional published articles, the sentiment remained consistent with the original scoping review that telepractice was best suited as an adjunct to in-person services[156, 160-163, 165, 166]. Some participants reported preferring in person initial sessions prior to transition to telepractice[161], others discussed the need for in-person sessions for specific types of assessments[165] and some families and clinicians reported that telepractice success varied across different people and contexts[162]. The flexibility of a hybrid model which includes both telepractice and in-person delivery modes enables individualised service delivery and provides better access than the exclusive use of either.

4.4 CHAPTER SUMMARY

The literature reviewed within this chapter shapes an understanding of how customer, clinicians and organisations experienced the use of telepractice to delivery therapy sessions to people with disability across the pre and post COVID-19 pandemic time periods. Generally, telepractice was viewed favourably as an addition to in-person sessions, however no publication indicated that they perceived telepractice as a permanent replacement for in-person care. The need for upskilling and resourcing in relation to telepractice for both clinicians and customers was indicated across the literature, however relatively limited information was provided regarding how these resources and upskilling initiatives were formatted and received. Additionally, the publications predominantly focused on specific types of therapy or diagnostic cohorts rather than telepractice service models implemented across all therapy types and disability diagnoses. Future avenues of investigation may include how to utilise the learnings of COVID-19 implementations to ensure sustainable integration of these services in the longer term. The next two chapters analyse a nation-wide survey of service managers and clinicians from disability support service providers regarding their experience of telepractice implementation.

CHAPTER 5: AUSTRALIAN DISABILITY SECTOR SURVEY OF TELEPRACTICE IMPLEMENTATION DURING COVID-19

The current chapter is one of two which provide a national level survey of disability support providers and managers from clinical departments from disability support service providers across Australia. The next chapter provides specific analysis of the impacts the COVID-19 pandemic had on the way implementation of telepractice was experienced across different areas of Australia. As described in the chapter summaries in Chapter one (Introduction), the published article included in chapter five and the published article in chapter six both describe the same data set and therefore the methodology section of each are duplicated. Small changes to the methods section have been included to align with the focus of each article, however the completed process and article content are materially the same. The chapter additionally provides a summary infographic of the published article which was utilised to disseminate the findings to a broad audience across the partner organisation Rocky Bay and the broader disability sector.

5.1 Preface

The article included below has been published as an open access journal article in Digital Health and appears in this chapter from the next page, in the original format. All supplemental material mentioned in the article is included in the thesis in Appendix 10.

> **Reference:** Benz C, Dantas J, Welsh M, Norman R, Hendrie D, Robinson S. Telepractice implementation experiences during the COVID-19 pandemic, a qualitative exploration of Australian disability allied health providers: A diamond in the rough. DIGITAL HEALTH. 2023;9:20552076231211283. doi:10.1177/20552076231211283

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Telepractice implementation experiences during the COVID-19 pandemic, a qualitative exploration of Australian disability allied health providers: A diamond in the rough

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Abstract

Telepractice has existed for decades, but as a result of the COVID-19 pandemic, it gained value and increased desirability across the disability service and health sectors, as a mitigation strategy for the viral transmission risk. The increased desirability of telepractice encouraged organisations to invest and correspondingly enhance access to services delivered remotely via digital technology including allied health therapy interventions. The investment and uptake of telepractice provided greater learning opportunities and ability to investigate telepractice implementation in specific contexts such as disability services, enabling service providers the ability to tailor to specific population needs.

Methods: This study investigated the experience of telepractice implementation during the COVID-19 pandemic from 13 allied health clinicians and managers of disability organisations across Australia between November 2021 and February 2022. A contextualist and critical realist theory was applied through the study, with reflective thematic analysis used as the data analysis method and findings described using a metaphor method centring on diamond formation. The method selection aimed to produce findings grounded in qualitative methodology and methods while remaining accessible to the disability community.

Results: An exploration and analysis of the data by the authors identified six themes addressing the experiences of participants and used the metaphor of diamond formation to describe changes in allied health clinicians and disability organisations during the COVID-19 influenced telepractice implementation.

Conclusion: The allied health clinicians and managers who participated in this study demonstrated an overall sense of hope that telepractice would be a viable and sustainable delivery pathway for services in the future. This article endorses the integration of a planned telepractice delivery pathway that capitalises on the momentum created by the COVID-19 pandemic in a purposeful and accessible way that looks to enhance rather than replace current practices.

Keywords

Telemedicine, telepractice, implementation, telehealth, COVID-19, allied health, disabled persons, disability, Australia

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Introduction

The COVID-19 pandemic necessitated a rapid transition to remote delivery of services via videocall across a plethora of industries including health (Telehealth) and allied health services to people with disability (Telepractice). Introduction of an innovation such as telepractice within disability services does not occur without impacts from

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external factors. The implementation interacts with the internal and external contexts of each allied health service provider, the clients with disability engaging in the service being delivered, the organisation as a whole and wider societal situations such as the COVID-19 pandemic.

Internationally the systemic motivation of nations and capability of organisations to provide services via telepractice increased exponentially following the onset of the COVID-19 pandemic. A Camden and Silva[1] study of international paediatric rehabilitation therapists showed an increase in uptake of telepractice within their workplace from 4% to 70% between August 2019 and May 2020. In European nations such as Turkey, allied health professional bodies including the Turkish Association of Speech Language Therapists advised the temporary decommissioning of in-person services due to risk of viral transmission.[2] South East Asian countries were particularly focused on transition to telepractice during the onset of the COVID-19 pandemic due to improving access to smart phones, lower than recommended doctor to patient ratios and high risk aging populations.[3]

In response to these rapid changes and telepractice implementation, a large number of COVID-19 related publications were produced, including those which describe allied health therapy provision and services accessed by people with disability. Multiple large survey studies have assessed the early experiences of specific clinical professions such as Boey and Lefevere[4] and Fong, Tsai[5] in speech pathology, by Abbott-Gaffney, Gafni-Lachter[6] in occupational therapy and Malliaras, Merolli[7] in physiotherapy. A series of articles by Lawford et al.[8,9] explored the wider population level uptake of telepractice by people with disability accessing services in Australia, and subsequently in those who experienced poor outcomes what factors may have contributed. In addition to the wider scope studies, a number of publications have endeavoured to describe single site and or discipline experience in an attempt to improve preparedness levels for the future and investigate sustainability of COVID-19 implemented services.[10–13] There would be perceived benefit in comparing experiences in an in-depth format, across a wider scope of allied health professions and organisational sites, to establish which implementation strategies may have produced more successful integration of telepractice.

In the Australian context, the Federalised system of government meant funding and responsibilities for public and social services are split between different levels, including public health and emergency responses (state) and disability support services (federal).[14] The National Disability Insurance Scheme (NDIS) is publicly funded to provide support to Australian residents who are deemed to have a permanent and significant disability.[15] The NDIS provides goal-based funding packages to eligible participants offering them choice of supports and services to enable them to participate in community, workplace and social activities.[16] Quasi-market schemes, that mimic commercial markets within a closed system, similar to the NDIS, exist internationally in countries such as the Netherlands, Norway and Germany (Carey, Malbon et al. 2017). NDIS participants receive a fixed term (e.g. yearly) individual tailored plan which outlines available billable hours of service in categories for specified supports; each service (e.g. nursing care) is allocated a charging rate at which the NDIS would reimburse a provider.[17]

A national reference body of independent not-for-profit organisations under the NDIS is the Ability First Australia (AFA), which consists of 14 separate disability specific service providers across Australia.[18] The AFA was the source of participant recruitment for the study. The consortium was selected as a sample of convenience representing the full scope in size and location of not-for-profit organisations in Australia who predominantly provide services to people with disability.

People with disability who wish to experience effective participation in society, may seek to address specific functional goals through accessing services such as allied health interventions. These interventions can be provided by practitioners in areas such as physiotherapy, occupational therapy, speech pathology, dietetics, behaviour support, and exercise physiology. Traditionally allied health services are provided in-person by a practitioner directly to the recipient or their support network (e.g. parent, sibling, support worker, teachers aid etc.) at a suitable venue such as a clinic, home or school visit.

Telepractice is the delivery of services by digital communication technology by a clinician to a client[19] with the services provided in this study specifically referring to synchronous sessions where the clinician and client (or support person) are connected in real time via videocall. Delivery of services by clinical departments of organisations such as those in the AFA utilised telepractice to provide continuity of care to their customers during the initial response COVID-19.

The division of responsibility combined with the diverse geographical and population characteristics of each state, uniquely positions Australia as a national case study of within country differences to managing telepractice implementation during the COVID-19 pandemic.[20] Each state in Australia experienced the progression of COVID-19 in vastly different ways, including Victoria where the capital city Melbourne spent the longest period of time in lockdown worldwide (n = 290 days),[21] compared to Western Australia with 12 days in lockdown but two years of extensive domestic border restrictions.[22] The number of days spent in public health mandated lockdowns for the remaining states included New South Wales (n = 107),[23] Queensland (n = 17),[24,25] South Australia (n = 13),[26,27] and Tasmania (n = 3),[28] which limited in-person service delivery.

This study looked to capitalise on the significant differences in experience across allied health professions and government jurisdictions, 18 months in to the COVID-19 pandemic, in an attempt to derive potentially successful future paths towards sustained telepractice integration. The main question addressed through this study is 'How do allied health clinicians and managers describe their experience of telepractice and its implementation, in the context of providing ongoing future sustainable services to people with disability following the onset of COVID-19?'

Methodology & methods

Study design

The study is a qualitative review of experiences collected between November 2021 and February 2022 from the allied health manager and clinician of disability organisations across Australia. Approval to conduct the study was obtained from the Curtin Human Research Ethics Committee (ID# HRE2021-0731). The reporting of this study is completed in compliance with the Standards for Reporting Qualitative Research.[29]

Theoretical underpinning

A contextualist epistemological position[30,31] is engaged by the study, which assumes the co-production of meaning by the participants and researchers that cannot be separated. Knowledge is viewed as a contextual representation of truth grounded in participant accounts, while acknowledging the role of the researcher.[32,33]

The ontological stance taken by this study is a form of critical realism which assumes a singular reality and retains the concept of truth, however, assumes an embedded influence of language and culture in each human experience, resulting in multiple perspectives and interpretations of this reality.[34] Situated realities of participants are analysed by the researcher as findings which are located within their own subjective view of reality.[33] The theoretical position aligns with the study aim as it enabled researchers to place the lived experience of participants centrally while considering the contextual and structural underpinnings of these accounts.[33]

Person-first language conventions are utilised within the study text in deference to the preference of experts with lived experience who contributed to this research project, in order to respect and affirm their identity. However, we respect the right to choose by participants and the potential for the alternate preference of identity-first language by members of the disability community (People with Disability Australia, 2021).

Methods of data collection

Data collection consisted of a demographic survey questionnaire hosted on Qualtrics and semi- structured interview via MS teams conducted and recorded by first author CB who is a registered physiotherapist with Masters level qualifications. She is currently completing her PhD with a focus on telepractice use for Allied Health professions, through an embedded researcher role at the industry partner with no previous roles within a disability service provider. The approach enabled in-depth exploration of experiences across a wide geographical and jurisdictional area, within the context of travel limitations.

The questions in the interview schedule were aligned to the salient constructs of the Consolidated Framework of Implementation Research (CFIR),[35] selected and agreed to by a Steering Committee of staff and customers from the industry partner. The process was completed to ensure the questions and focus of the study was relevant to clients and service providers of the industry partner and the wider disability community. The demographic survey questionnaire formation was based on a consolidated version of the demographic characteristics collected by Lawford et al.[8] and internally pilot tested by the research team prior to distribution. A copy of the interview schedule (Appendix 1), salient CIFR constructs (Appendix 2) and demographic survey questionnaire (Appendix 3) are provided as Supplementary material. The semi-structured interviews were transcribed verbatim, each participant was given a copy of the full transcript via email with the opportunity to confirm their validity and provide comment, four participants provided additional comment which were included in the analysis.

Data analysis methods

Rationale

Reflexive thematic analysis. Data analysis was conducted primarily by the first author (CB) who engaged with the methodology of reflective thematic analysis[36] as it aligned with the goals of drawing patterns across the data set, with a critical realist orientation and flexibility to describe core aspects within the data. Reflexive Thematic Analysis provided flexibility to integrate a metaphor method element to the naming of themes and description of findings.

Metaphor analysis. Metaphors are used by humans as a way of structuring understanding of experiences,[37] therefore can be utilised as a method of expanding understanding through linking familiar experiences to those less familiar or more complex. A metaphor is defined as a figure of speech replacing one idea or object with another to suggest an analogous relationship.[37] Metaphors have been described in published qualitative research as a strategy used to aid data analysis and reporting of findings.[37,38] Recent examples of metaphor use in qualitative health research include an article by Colak (2022)[39] to understand the COVID-19 pandemic through data created by social media users. The rationale to incorporate metaphor into the description of findings linked to the goal of improving accessibility of academic research outputs for the target audience. The use of metaphor improves the understanding of complex topics[37] and has been described with the use of symbols from the natural world forming an effective tool for creating and conveying meaning.[40]

Analytic process. Data analysis commenced through building an understanding and familiarity while editing the initial transcripts produced by MS teams to ensure accuracy with the interview recordings and uploading to NVivo software for analysis. The initial codes were informed by the theoretical framework of the CFIR[35] as it encouraged the first author (CB) to frame the initial allocation of data coding into aspects of telepractice implementation. The salient codes/constructs of the CIFR used in the reflexive thematic analysis, which were described in the current study, were External Policy & Incentives, Implementation Climate, Individual Stage of Change, Skill Development, Adaptability and Culture. The broad codes produced using the CFIR framework were repeatedly read and an inductive process of generating patterns was used to narrow down themes and describe both semantic and latent meaning derived from the codes.[33]

While reviewing themes the first author discussed with the second reviewer (JD) to understand how the themes fit together to address core ideas; namely as the thematic analysis process produced multiple concurrent tangential aspects of the experience of telepractice implementation. Through this discourse the authors reflected that the analysis, while representing a cohesive whole set of experiences, could be delineated into three specific core ideas that formed research questions under which the themes of the data analysis resided. One of the core ideas revolved around the COVID-19 impact on experience (the current study), with the remaining two addressing practical considerations (meeting clinician needs, and telepractice functioning for service recipients) to be discussed in a future publication.

The phases of refining, defining and naming themes and subsequent writing were completed concurrently in a series of drafts, which looked to incorporate the use of metaphor to best create a coherent story. The first draft described findings purely through themes of the reflexive thematic analysis, which subsequently were used by the first author in describing to people within their network unfamiliar with the study to trial the use of different metaphors. This established the metaphor which situated most comfortably within the findings and resonated most clearly with people outside the research group.

Participant recruitment

Each individual organisation that is a member of the Ability First Australia Consortium were offered the opportunity to participate in the study, with eight of the 14 member organisations providing an expressions of interest, utilised to assess the feasibility prior to ethical approval. The inclusion criteria for the study for each eligible AFA organisation was one manager who was involved in the design and implementation of telepractice and one therapist who delivered services to clients via telepractice. With the exclusion criteria set as staff whose role did not include providing direct therapy to people with disability or management of therapy staff. A key informant sampling strategy, with the addition of snowball sampling within organisations, was implemented through the recruitment of both clinician and management positions, which aimed to provide a variety of viewpoints and potentially identify differences in experiences based on location and between roles and level of service provision. The study offered participants the option to select a pseudonym for quotations within the published study, with all names replaced to safeguard anonymity.

Demographic characteristics. Invitations to participate were provided to AFA member organisations (n = 14), eight organisations provided initial consent, participants volunteered from seven of the organisations and completed at least one interview (n = 13 interviews) with one organisation unable to provide a management volunteer. All participants were currently employed by an AFA member organisation, able to speak English, and provided written informed consent prior to completing a one off 60-minute one-on-one interview with the first author (CB). Demographic characteristics of interview participants included an all-female cohort with an age range of 29–64 years, with professions including behaviour support (1), nurse (1), occupational therapists (3), physiotherapists (3), speech pathologists (4) and one participant who selected the ‘other’ described themselves as a Dual Diagnosis Clinician (alternate options included dietician and social worker). The geographic location of our sample was inclusive of all states of Australia (exclusive of Territories). Three participants identified working across two states and one participant identified working from one state servicing participants in a different state, as both had moved interstate during the past year. Services were provided via telepractice prior to the COVID-19 pandemic in a small-scale capacity for rural clients in two of the organisations, with the remaining five providing no telepractice services prior. The thematic analysis method used does not support the concept of reaching saturation, however the key identifier of richness of the data set within the study was linked to distribution of participant organisations across Australia, which was achieved.[33]

Results

The exploration and analysis of interview data by the authors resulted in identification of six themes from the experiences of participants. The six themes were derived from the common experiences and perspectives expressed by the participants. From the metaphors proposed by the research team, the formation of a diamond was selected by lay responders as most clearly aligning with the findings and resonated most clearly. This metaphor was subsequently used to assist the description of the change in clinicians and disability organisations during the COVID-19 influenced telepractice implementation. These themes include (1) diamonds are forged under pressure, (2) not all carbon crystallises into diamond, (3) diamonds are naturally formed, and human made, (4) creating diamonds takes time, (5) creating something beautiful and (6) diamonds are forever, but not for everything.

Diamonds are forged under pressure

The theme 'Diamonds are forged under pressure' explores the idea that external pressure can have the power to generate change. This idea was expressed in various ways in relation to the impact of the COVID-19 pandemic on telepractice implementation. An analogous link is drawn between the COVID-19 related pressure that participants described as transforming how allied health interventions were delivered, and the pressure of the earth causing carbon to crystallise into diamond.

The pressure of the COVID-19 pandemic and associated health mandates was viewed by participants explicitly as a motivating factor for the implementation of telepractice; with clinician Eliza reflecting 'we never used it before the pandemic, so I guess that pushed us into using it' and manager Jemma delving further into comparing motivations to pre pandemic:

> [Jemma] it was the sole reason why we started using it and the sole reason why we went back to using it as our main form of service delivery during the lockdown in 2021, without those our use of telehealth would be very limited if at all.

When the world was plunged into uncertainty by the rapid spread of the SARS COV2 virus, the circumstances provided increased difficulty to the already challenging process of introducing a new method of delivering services. A manager reflected feeling 'one out of ten, not very prepared [Jemma]' at the time of the pandemic starting and the roll out of telepractice. The intention to roll out telepractice in the future, or to upscale small regional telepractice services was noted, with one clinician indicating 'I think they're always intending we eventually go down the route of Teletherapy [Eliza]'. Those intentions were replaced with a reality where a rapid transition to an unfamiliar method of delivering services collided with an already heightened state of anxiety across both clinicians and customers, participants' personal and professional lives.

Multiple refrains of 'everyone just freaked [Samantha]' and 'it was a bit overwhelming [Amina]' reflected on the anxiety of the situation during the initial roll out of telepractice. Potentially exacerbating this heightened anxiety was the added COVID-19 responsibility for managers, an example of which was discussed by Danielle the manager of clinical services for her disability organisation:

> [Danielle] people like me and others at a similar level to me in the organization were spending a lot of time having to think about how the organization as a whole was managing COVID and the risks associated with it.

The lack of opportunity to weigh up relative merits prior to preparing for telepractice implementation is likely to be representative of time pressures felt by clinicians and manager to react to the COVID-19 pandemic. The lack of preparation prior to using telepractice is present throughout all interviews in terms used to describe the change such as 'didn't have a choice, needed to adapt' [Danielle], 'they had to pivot quickly'[Samantha], 'snap lockdowns'[Natasha] and 'all of a sudden'[Amina]. However, the fact that the external pressures were unilateral, meant the lack of time to prepare was not specific to telepractice, with one manager reflecting:

> [Danielle] but it helps that we're in the middle of a pandemic and so using zoom or team wasn't such a big deal because they then went home and that's how they were talking to their kids on the other side of the world or on the mainland. So once again just lots more practice and everybody was doing.

This COVID-19 pandemic pressure point created a starting point for all telepractice delivery paths, as a catalyst for change.

Not all carbon crystallises into diamond

The theme 'not all carbon crystallises into diamond' denotes that although there may be a common starting point, or the same ingredients, variation in conditions and experiences can cause separation of paths and differing results. The onset of the COVID-19 pandemic served as a starting point, variations in geographical location, virus prevalence and lockdown mandates caused experiences to diverge. This links to the diamond metaphor in that carbon is a fundamental and incredibly common element, much like the human experience of the initial onset of the COVID-19 pandemic. A specific set of conditions and circumstances causes carbon to crystallise into diamond, and similarly specific conditions and circumstances enabled successful uptake of telepractice by a subset of clinicians and organisations while others reverted to their original state.

> [Ella] I think we definitely had to use it more Melbourne because by the 2nd lockdown people were like, well, I'm not going to use my NDIS funding, I'm going to have to do it. Whereas in Perth because the mandates are so short that people tend to decline, would prefer and wait and save their hours for face to face. So yeah, I think their hands are being forced to be more of East, whereas it's still not really the norm here in WA.

The paths taken by participants were broadly delineated based on geographic location and associated time spent under public health mandated lockdowns. These threads weave throughout the participant accounts of experience and were split during analysis into those who achieved sustained telepractice use (crystallised into diamond) and those who returned to the previous path of face-to-face delivery (carbon stasis). The sustained use of telepractice compared to those who reverted to in-person were not viewed as positive or negative judgement of either outcome, but predominantly as a method of identifying what factors and conditions enabled some clinicians to progress towards sustained telepractice use.

The participants who lived in states with short lockdowns (avg. < 1 week per lockdown, total lockdown days <2 weeks) described a lack of long-term engagement in telepractice which was engendered by a stop/start uptake of telepractice before reverting to in-person delivery.

> [Natasha] Certainly when we've gone into lockdown restrictions, that it goes up or what we've found because of our short-term ones rather than it being telepractice the customers ask the therapist to do all their indirect work for them.

Clinicians on this path reflected it felt more like something that was picked up and put down repeatedly rather than continuously integrated into service delivery, resulting in the perception that telepractice was only available during lockdowns even though [Shona] 'realistically, they've always been there.' These views contrast to those who spent more than 100 days in lockdown, where telepractice was viewed as the only service delivery model available for extended periods of time, and therefore customers and clinicians engaged.

> [Megan] From my personal clients I only had maybe two who didn't end up choosing to do telepractice and they did wait for face to face…but large majority did transition it was just a matter of when they wanted to.

Both pathways noted a delay in the initial uptake of telepractice with Ella describing 'I didn't really get that uptake of telehealth until a month or two in', however the lack of end date described as 'the foreseeable future' and 'the new normal' meant customers and clinicians under longer term lockdowns felt they lacked any other viable option. These conditions created a context for long term engagement in telepractice and corresponding skill development and self-efficacy in delivering and engaging in therapy sessions via telepractice, creating the diamond group.

The significant variation in circumstances and paths of telepractice implementation created a significant challenge for the NDIS regulatory body, the National Disability Insurance Agency (NDIA) in relation to how it guided organisations and funded telepractice in response to the COVID-19 pandemic. One participant reflected that as a national scheme the NDIA was purposefully vague and not prescriptive in its response in order to navigate the vast differences between COVID-19 prevalence rates and state government implemented health mandates across different parts of Australia.

> [Danielle] from an NDIS point of view it being national, that not having regulations did allow us to just make a decision about what was going to work for our organization.

The flexibility and autonomy provided to organisations resulted in mixed views from participants, with some feeling very strongly that the NDIA could have done more, and others feeling sufficiently supported.

> [Natasha] it did confuse our customers a little bit down the track though, because then they didn't understand the difference between why NDIS funded things back in those first few months and now why they won't.

Participants acknowledged the initial confusion responding to the COVID-19 pandemic was understandable, the NDIA did enable service recipients to purchase iPads and laptops to facilitate telepractice. However, all other telepractice related supports and infrastructure for clinicians and customers fell under the remit of each individual organisation. With this lack of structure or guidance from the regulatory body, managers and clinicians were responsible for sourcing their own resources and formulating policy guidelines, which enabled a multitude of telepractice implementation paths.

These variations mirror the diamond creation metaphor in that some experiences described continued sustained use (crystallised into diamond) and the remaining reverted back to in-person delivery (carbon stasis).

Diamonds are naturally formed, and human made

The creation of naturally formed diamond is relatively rare, with natural conditions in specific regions required to forge diamond. As scientific knowledge has developed, humans have learnt how to facilitate the intentional creation of diamond to increase the frequency and reliability of successful diamond formation. The intent of the theme 'diamonds are naturally formed, and human made' is to highlight the need to identify what conditions are required to replicate the path of sustained telepractice use, in a controlled, intentional and repeatable way. The declaration of the COVID-19 pandemic and associated worldwide impact has prompted significant investment into understanding how to improving preparedness and prevent a reoccurrence.[41] Therefore, repetition of previous events cannot be relied upon for natural formation of telepractice delivery pathways that has occurred with the COVID-19 pandemic; it does provide an excellent opportunity to learn and potentially manufacture intentional telepractice delivery pathways.

The impression given by the frantic implementation of telepractice during a time of heightened anxiety, seemed to be one of telepractice as a crisis management tool rather than a long-term delivery model, which appears to have impacted on clinician perceptions of its longevity and usefulness.

> [Eliza] I feel like it was probably quite rushed in that I feel like we were just being quite reactive. We needed teletherapy because COVID had happened.

Clinicians cited the need to complete billable hours in order to make money and retain their roles, not really having a clear idea of how long telepractice would be used as a solution to therapy access during the COVID-19 pandemic and implying its implementation was perceived as more of a temporary fix rather than a long-term delivery method.

> [Emma] It was still always marketed as a COVID tool and despite, I think COVID being great to have brought it; helped us fast track it, I think we suffer a bit from that. We're not you know in lockdown, so why should I do telepractice?

The COVID-19 pandemic provided the motivation to implement which Danielle admitted they had previously 'always put in the too hard basket', it simultaneously identified significant weaknesses in their digital infrastructure and capabilities. Four of the managers reflected upon a lack of preparation heavily impacting the organisations due to underinvestment in digital technologies and infrastructure in the preceding years.

> [Emma] We didn't even have laptops, some of them [clinicians]. The majority didn't have laptops actually.

Managers tended to be more optimistic regarding the positive intent and success of the integration of telepractice delivery than clinicians. They either currently believe more services are provided by telepractice or that the clinicians feel more confident in providing services than the clinicians indicated. Mangers tended to see the potential of the delivery mode more than clinicians. This sentiment was displayed most prominently by three pairs of managers and clinicians from the carbon stasis pathway.

> [Natasha] You know, we can provide therapy on land in the water in an equipment clinic or via teletherapy like it's just actually part of our being now.

Those in the carbon stasis pathway, both in the management and clinician cohorts, reflect that the consistent use of telepractice was an anomaly, with the reality being that most clinicians and customers had reverted to face-to-face delivery. The majority of people who engaged in telepractice had not maintained the change, with Liz one of the managers commenting 'I would say probably I would say high 80 s to 90% reverted back to face-to-face'. Additionally, two therapists specified they didn't believe therapists were still offering telepractice as a delivery pathway for therapy.

> [Ella] And it's still not something I would say that most therapists would regularly offer.

Clinicians who describe themselves as less confident in using telepractice also noted that the support for telepractice was only present during the height of the COVID-19 pandemic lockdowns, and it was not ongoing.

> [Eliza] I feel like the bulk of the COVID kind of was over and then they were like 'Oh well. Don't worry about you teletherapy' even though some of our customers still wanted it and there's not really seemingly that support around us and how best to implement it.

Those on the diamond crystallisation pathway had not returned to near exclusive face-to-face delivery, which could be inferred a high level of skill development and self-efficacy and indicated potential for a sustained telepractice delivery pathway.

Creating diamond takes time

Over time a diamond grows larger as it forms within the Earth's crust, or with an intentionally created diamond, time is required in the trial-and-error process to improve the quality of the diamond produced. The theme 'creating diamond takes time' expresses the idea that producing quality requires time and investment. To create quality delivery pathways, it is not sufficient to provide the base level conditions as described in the previous theme, but to invest in the time needed to integrate telepractice. The time afforded to the diamond pathway through the extended periods in lockdown was perceived as both a blessing and a curse. Manager Jemma reflected the length of time in lockdown and instances when the end of public health mandates was unknown significantly impacted uptake by recipients; and they were more likely to consider telepractice when the alternative was unknown or extended for periods without access to services:

> [Jemma] So the one that lasted for four months, If it had only lasted for the two weeks as was originally announced then there would have been lots of people who would have just put it off. But then as soon as that two-week mark ticked over, people realize that it was going to be for the long haul and they didn't want to miss out on services for an unspecified amount of time.

There were instances where clinicians had experienced the pandemic in multiple Australian states; where their experience created a comparison on the impact on telepractice implementation:

> [Megan] It definitely sped up the adapting. So now I'm in Queensland and telepractice is still not moving yet and you're like. OK, well people are now getting locked down and we need to get the ball rolling, but it hasn't happened yet because it hasn't hit, I guess the same climax that Victoria did a couple of years ago.

Some clinicians did not have sufficient opportunity to practice and upskill with the provision of telepractice sessions remaining difficult two years after the initial implementation, these views were more predominant on the carbon pathway.

> [Shona] I think at the moment if we're having a telehealth session our therapist and needing quite a lot of time to prepare for those sessions both physically and like setting up the technology but also mentally prepare for I'm doing this.

However another participant on the diamond pathway described having attended university 20 years or more ago, with zero previous experience with telepractice and reflected on her progress towards learning to use telepractice.

> [Amina] it was a bit overwhelming when it first happened … Then actually it kind of fell into place. Gradually, it did take time, so I would say now it's much easier looking back today two years post COVID.

The time allocated to developing the skills utilised in telepractice was more obviously condensed under the public health mandated lockdowns enforced on some. Other participants acknowledge they understood the basics but had not attained full mastery of the skill. When prompted regarding requiring additional supports or training to develop her skill level, one participant replied:

> [Adele] No. No, it's more me getting my head around what it can do and me investing in those skills and time to do that.

Two participants noted purposefully taking time to plan and commit to ongoing use. These participants were identified as being on the diamond pathway. Jemma who assumed a management role in the telepractice rollout described the preparation phase to be occurring concurrently with the initial implementation and ‘A formal rollout didn't actually happen until well after the first lockdown ended. The way that we used it initially was like with a bit of a free trial.’ However she went on to note that the number of people across customers and clinicians who trialled telepractice was viewed as much higher than would have been without the time of long term lockdowns which meant some customers who were initially hesitant, eventually agreed:

> [Jemma] And some refused in that first lockdown. But then yes, second lockdown. People just picked up on it immediately and just said yes, let's go straight to telehealth. Even ones that said no in the first lockdown.

Whereas Amina, one of the clinicians, described encouraging other staff members to continue to introduce telepractice with customers to prepare for future potential lockdowns.

> [Amina] I said look, let's just maybe give it a try because Sydney may have to go into lockdown… So I'm also trying to now like get people prepared. So that way when we do transition, if we do actually go into lockout, it's not that boom boom.

Creating something beautiful

The theme ‘creating something beautiful’ encapsulates the unexpected positives of telepractice implementation, despite the hard times and stressful beginnings. The process of creating a diamond is not easy at this point in time; but is nevertheless one worth pursuing. The participant data consistently portrayed that telepractice was a beautiful outcome that was surprisingly useful and worth continuing. Multiple therapists acknowledged telepractice was unexpected, perceived negatively prior to implementation and potentially the silver lining of the pandemic.

> [Jemma] Yeah, unless you're forced to try something that you have a preconceived notion about like you're never going too. That notion is never going get tested, and so yeah. Is that a silver lining?

Service recipients who were initially hesitant and then subsequently agreed to a trial, were described as being surprised by the level of success telepractice had in delivering services. Danielle, whose organisation provides services to many regional areas through outreach clinics, described this as a great advantage.

> [Danielle] We might only go once a month, but it would mean that they could use telehealth in the meantime to access services and I think for lots of families, they'd never wanted to try it because, they didn't think it would work … but then because they kind of had to, they can now kind of see this does actually work.

Not only were there a wide variety of new customers introduced to telepractice delivery pathways, a number of different types of services were delivered via telepractice. These included group exercise classes, group social skills classes and telepractice augmented assisted communication support sessions.

> [Samantha] They then started coming up with some ideas about how to run some social skills groups for adolescents with autism, and they put in place this program running social skills groups by telehealth and that worked really, really well.

Clinicians who feel comfortable using telepractice viewed themselves as using it as a part of their practice, with four participants identifying different reasons why they feel it improves the scope of the services they can deliver. Through savings in travel, increased access and improved ability to provide coaching based therapy strategies, they felt telepractice is part of how the world looks moving into the future.

> [Megan] No, I can't see myself not continuing the telepractice. I think it just works well, in terms of the flexibility of it… after COVID it is going to just be a thing that's just going to be a lot more accessible in terms of, you're not going to have to drive into the city to a centre to see a therapist you can go home and do it from the couch. It's just going to be more functionally accessible to people.

Some clinicians aspired to reaching a point where they could comfortably integrate telepractice delivery pathways, hoping to create a diamond, requiring additional training and support to achieve these goals:

> [Shona] So if we got to a place where we all felt really confident in our skills as clinicians to delivering intervention via telehealth, that would be something that would happen more easily.

With others indicating the future is now and they viewed telepractice as an additional tool which enhanced their capabilities as clinicians:

> [Margaret] I love, I love it. Absolutely love it. I engage with (my customer), I can observe my customer. For example is for a customer I can observe while he's cooking a meal with his support staff. I could just be watching from an iPad, just set up on the bench.

Diamonds are forever, but not for everything

The theme 'diamonds are forever, but not for everything' turns to the future and makes meaning of intentions to integrate telepractice as a delivery pathway without using it to replace current delivery pathways. Diamonds are durable, long lasting and synonymous with serious investment; however, they are generally not perceived as useful in isolation but integrated into a jewellery setting and worn with an outfit. Similarly, telepractice delivery pathways are considered a valuable addition to face-to-face delivery, and best utilised in hybrid models as opposed to exclusively used regardless of context.

The COVID-19 pandemic created a significant shift from one end of the spectrum, predominantly in-person, to all services potentially being delivered via telepractice. The extreme shift in delivery pathways was not initially viewed by participants as their organisation implementing a long-term change, but purely as a targeted response to the COVID-19 pandemic. Negative consequences were highlighted by this unexpected shift, which centred around the concept of work life and home life separation. One clinician, Ella specifically mentioned 'I think that's also one of the hardest things when you are working permanently from home… that blurred line between work and home is hard.' Those in professional caring roles such as allied health therapists created a significant emotional load for the clinicians and Ella continued her thoughts by discussing this mental load.

> [Ella] it's been hard to switch off because you're working in your own space. And I think with the work that we do can be quite gruelling in terms, if you take on a lot of the worries at the family… and when you then take that into your own house I think it's harder to switch off, which I think it can be a challenge for telehealth.

Working from home and delivering services via telepractice exclusively, created challenges not only in setting boundaries, but additionally in ensuring appropriate rest breaks. The learning process of shifting to a new delivery mode and location took time to adjust and understand how best to navigate a healthy balance, with two managers acknowledging this challenge in guiding their staff, one describing:

> [Natasha] therapists because they can work from home, they often work longer than they should and then customers get that impression that they can. What I've noticed, though, is that therapists are reining that back in again cause they're going 'I let that go too much'.

An alternate opinion was present with participants describing delivering services via telepractice and its facilitation of working from was a positive development. One clinician described the full shift to telepractice enabled her temporary relocation out of state, while continuing to provide services:

> [Megan] September last year that I chose to do it, we were in lockdown again and I decided that I wanted to move up to Queensland. Be closer to family and things like that. I'm lucky that it was just a discussion with the team leader and management and they were happy to transition to just stay with Telepractice.

On a smaller scale, the ability to transition exclusively to telepractice enabled short-term continuity of care in response to periods of staff or client mandated COVID-19 isolation periods:

> [Danielle] It has been helpful particularly during COVID in terms of when people have had to isolate or you know when people have had COVID and can't be at work or close contacts it reinforced that they can actually work from home and do their client work from home as well.

One clinician reflecting she felt safer using telepractice in periods of high transmission of COVID-19 and that it was a protective mechanism for her in her personal and professional life. In the years post the declaration of the COVID-19 pandemic, the fluctuation of transmission rates, circulation of vaccinations and changes to public health mandates has shifted the delivery of interventions by allied health clinicians from exclusively telepractice or face-to-face, to a point where interventions were delivered using both modalities dependent on circumstance.

> [Samantha] They started to adjust their management of their caseload and it ended up they could manage when they stayed in and did telehealth and manage when they went out so they were able to adjust their balance.

The value was found not in exclusive use of telepractice, but in its ability to enhance service delivery through increased flexibility and options for therapy, while clinicians continue to prioritise good clinical judgment and client choice in selecting appropriate delivery pathways.

Discussion

The current study of clinician and managers around Australia explored experiences of telepractice implementation during the onset of the COVID-19 pandemic and found that, while circumstances necessitating introduction were not optimal the overall impression of the potential for telepractice use into the future was positive. Participants acknowledge it was unlikely they would have initiated telepractice use without COVID-19 but were hopeful for the future of telepractice now they had gained experience. Telepractice was viewed as an addition to face-to-face care in a hybrid, flexible model which can respond to specific client, therapy and wider contextual requirements. Increasing the probability of sustained telepractice use may require intentionally designed delivery pathways with a strategic implementation and ongoing support for clinicians and service recipients, as purchasing of hardware has been demonstrated as insufficient to garner sustained telepractice use. An example of a framework to guide such sustained implementation was described by Thomas, Taylor[12] within the context of health care based allied health services and reiterated the need for supporting clinicians and service recipients as well as systems-based planning which builds from what occurred during the COVID-19 pandemic period.

In terms of why now is different, in literature published prior to 2020, Cole et al.[42] described the preconceived notion of participants living in Colorado, USA, regarding unachievable nature of telepractice as a fundamental barrier to uptake. These sentiments were echoed by clinicians who participated in research studies conducted at the onset of the COVID-19 pandemic.[4–6,12,13] Similar views of the unachievable nature of telepractice existed in this study participant cohort and dissipated under pressure of the COVID-19 pandemic. With the pandemic acting as the catalyst to trial telepractice in the theme 'diamonds are forged under pressure', clinicians gained experience. The experience increased baseline awareness and reduced a fear of the unknown, which in pre COVID-19 pandemic literature was often described as a barrier to offering telepractice.[43,44] As a public awareness strategy for telepractice as suggested Cole et al.,[42] the COVID-19 pandemic could not have been more successful, however negative experiences and sporadic uptake described in the theme 'not all carbon crystallises into diamond' may have a long-term impact on sustained use. The rapid uptake and haphazard nature of telepractice during the period of COVID-19, highlighted the importance of adhering to guiding principles such as to 'digitise with purpose'.[45] The time pressure and wide variability of sustained results described in the first two themes, demonstrated that a catalyst for widespread uptake does not appear sufficient for long-term sustained use. Similar barriers of forced telepractice adoption were described by Thomas, Lee[46] as justification for the creation of an allied health specific implementation framework and Campbell, Theodoros[47] identifying a lack of implementation framework or plan across current literature.

Once the peak pressure and external incentives for telepractice uptake caused by the COVID-19 pandemic had dissipated, a significant proportion of therapy delivery reverted to traditional in-person pathways; indicating the potential need for more targeted incentives tied to meeting individual needs and providing greater value through telepractice.[45] Abbott-Gaffney, Gafni-Lachter[6] identified similar predisposition to return to in-person services following COVID-19 implementations of telepractice and highlighted educational support and learning opportunities to enhance clinician confidence to support ongoing telepractice utilisation. Temporary resolutions of systemic access barriers were implemented by the NDIS to support telepractice uptake (theme: Not all carbon crystallises into diamond); however it is evident that a lack of clarity and long-term planning created increased difficulty for individuals navigating the system. Similar difficulties were identified by Murphy et al.[48] in the context of the United States disability support system during the COVID-19 pandemic, and implied that system level changes are required in multiple countries internationally to support sustainable digitised service delivery.

Resourcing and upskilling were major investments into telepractice undertaken by study participant organisations following the onset of COVID-19 and was also mirrored across other frontline services.[1,11] The desire for ongoing upskilling and education is understandable in the context of findings described by Abbott-Gaffney, Gafni-Lachter[6] that 92% of occupational therapists surveyed had no experience using telepractice prior to the COVID-19 pandemic and 99% of respondents adopting it due to the pandemic, most with only days between planning and utilisation. As discussed in the theme ‘diamonds are naturally formed and human made’, while management may consider access to telepractice capabilities such as hardware and initial education sufficient in enabling service delivery, clinicians described significant ongoing support is needed for both themselves and service recipients. These sentiments parallel the two aspects of telepractice experience described in a scoping review by Benz et al.,[49] with managers focused on organisational requirements without adequately supporting the variability and individuality of participant considerations described by clinicians, displaying mismatched expectations and outcomes.

Indications of successful and sustained use described by some participants implies that the telepractice delivery pathway is possible. The utilisation of change management processes were endorsed by multiple articles across the available literature[43,50,51]; with themes of ‘diamonds are naturally formed and human made’ and ‘Creating diamond takes time’ similarly endorsing the need for planned change to increase the potential for sustained success.

As a silver lining of a pandemic, participants viewed telepractice positively even when describing the need for further support to achieve better integration. Ideas described in ‘creating something beautiful’ magnify the results from previous studies which described positive impressions of telepractice use,[51] choosing continued use[50,52] and the appetite for telepractice in metropolitan areas.[53] The description of telepractice enabling better integration of therapy into everyday environments of service recipients in the scoping review completed prior to the study[49] are supported by the findings described in this study’s final two themes.

The concept of hybrid models of care which incorporate a flexible integration of both telepractice and in-person delivery pathways was described by participants as both the current and future preferred state of telepractice implementation (theme: diamonds are forever, but not for everything). This hybrid service utilisation enables benefits of both delivery pathways and is supported in the literature by articles specific to the experience of people with disability and their service providers[50,52] and more broadly[54] in the paediatric rehabilitation space and across cohorts of clinicians.[4] With the Consumer Health Forum[45] endorsing the principles of ‘not digital only, enhance not replace’, the implication is telepractice in its current iteration is unlikely to supersede the delivery of face-to-face therapy, but is viewed as a valued addition.

Strengths and limitations

There is a possibility those who volunteered to complete the interview were more likely to be stronger and more frequent telepractice users. This however could be seen as a consistent trend across organisations; therefore geographical nuances could be considered representative, however the overall confidence of the whole cohort would be assumed to be lower than that demonstrated by interview participants.

The study is relatively over representative participants who identify as female; however, the gender bias is indicative of the over representation of females in the industry. The analysis describes a snapshot of time and perspectives of participants who were reflecting on past and present experiences with telepractice, with the COVID-19 pandemic occurring ongoing during the interviews and participants completing interviews over a four-month period. Timing of each interview and the order completed may have impacted on the reflections of each participant at the time. The challenges of completing research during a global event such as a pandemic created uncertainty, but additionally depict the reality of the experiences of participants in their context and associated challenges.

Selection of reflective thematic analysis as the method supports the descriptive framing of experiences of participants when explored through interviews with the first author (CB). The transferability[55] of findings specific to experiences of participants and study context may be limited in direct comparison to alternate locations, contexts and times, however the reader may find opportunities to extrapolate the findings to guide future telepractice policy, implementation or investigations.

Future directions

In line with the diamond metaphor, there is an excellent opportunity to further support the growth of quality telepractice, to shine as options for people with disability to access therapy. Further investigation is required into specific support needs service recipients and the wider workforce desire to integrate telepractice into therapy service delivery. Working with people with disability to utilise their agency in deciding when, where and how telepractice should be offered to them could provide a platform for sustained and successful telepractice use; and subsequently supporting clinicians and organisations to implement and evaluate telepractice delivery pathways.

Conclusion

Clinicians and managers who participated in this study demonstrated an overall sense of hope that telepractice would be a viable and sustainable delivery pathway for therapy services in the future. This article endorses the integration of a planned telepractice delivery pathway that capitalises on momentum created by the COVID-19 pandemic in a purposeful and accessible way that enhances rather than replace current in-person practices. Learning from the past, embracing telepractice now, and empowering organisations to proactively embed digital capabilities and has the potential to improve service delivery for people with disability, in addition to increased preparedness in the event of future local, national and global emergencies.

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5.2 Journal Article Summary Infographic

Telepractice Research Project
National Perspectives on Telepractice use during the Pandemic

This is a **graphic summary** of an article which looked at how allied health clinicians and clinical department managers of Disability support service organisations around Australia experienced using telepractice during the COVID pandemic. The article is part of the **Telepractice Research Project** between Rocky Bay and Curtin University.

Telepractice is accessing and providing clinical services via telecommunications (video) technology.

What we looked for:

"What were the experiences of Allied Health Clinicians and Managers of Telepractice, in the context of providing services to people with disability post the onset of COVID-19?"

Where we looked:

abilityfirst AUSTRALIA
7 Disability Organisations

13 Managers & Clinicians

Representing All States

60 min Interviews

Nov 2021 – Feb 2022

What we found:

We described the findings with **the metaphor of creating a diamond**, this was a way of structuring understanding of participant experiences in comparison to a physical visual.

- The pressure caused by COVID-19 changed services to include telepractice as pressure changes carbon to diamond.
- It is important to invest in the time needed to create something valuable like a diamond or quality telepractice service.
- Each states experienced the pandemic differently & those with longer outbreaks were more likely to use telepractice.
- Telepractice was a silver lining of the pandemic creating something beautiful like a diamond.
- We can artificially create diamonds, & we need to learn how to create successful telepractice outside COVID.
- Diamonds are rarely used in isolation, equally telepractice was viewed as best suited in combined with in-person.

More information is available in the full article, to find the article online and in PDF follow the QR code or type the DOI link (below) into your internet browser, if you have any questions feel free to email cloe.benz@rockybay.org.au.

Benz C, Dantas J, Welsh M, Norman R, Hendrie D, Robinson S. Telepractice implementation experiences during the COVID-19 pandemic, a qualitative exploration of Australian disability allied health providers: A diamond in the rough. DIGITAL HEALTH. 2023; https://journals.sagepub.com/doi/10.1177/20552076231211283

Curtin University Human Research Ethics Committee Approved (HRE2021-0731).

Rocky Bay HEALTH + COMMUNITY

Curtin University

5.3 Chapter Summary

The current chapter is one of two which provide a national level survey of disability support providers and managers from clinical departments from disability support service providers across Australia. This chapter provides specific analysis of the impacts the COVID-19 pandemic had on the way implementation of telepractice was experienced across different areas of Australia. The prominent findings of the article included that telepractice was used only sparsely by the participant disability providers prior to COVID-19, and that the implementation was a direct response to the need to remotely support customers through the pandemic. The allied health clinicians and managers demonstrated a sense of hope for the future of telepractice as a sustainable and viable method of service delivery. They additionally preference the utilisation of telepractice to compliment in-person services in a hybrid model of care, rather than as a replacement. These findings contributed to shaping the subsequent components of the research by indicating that clinicians and managers support the long-term integration of telepractice into clinical practice, and additionally identifying areas for improvement.

The next chapter is the second of two chapters which analyse the experience of clinical providers and managers in using telepractice; with this article focusing on the functionality and usefulness of telepractice for customers who are accessing clinical services from a disability support service provider.

CHAPTER 6: AUSTRALIAN DISABILITY SECTOR SURVEY OF TELEPRACTICE FUNCTIONALITY FOR CUSTOMERS

This chapter is the second of two chapters which analyse the experience of clinical providers and managers in using telepractice; with this article focusing on the functionality and usefulness of telepractice for customers who are accessing clinical services. The chapter includes a journal article, followed by a summary infographic of the article which will be utilised to disseminate the findings to a broad audience across the partner organisation Rocky Bay and the broader disability sector.

6.1 Preface

The article included below has been published as an open access journal article in Health Expectations, and appears in this chapter, from the next page, in the original format.The supplemental material for this article is the same as the article published in the previous chapter and is included in Appendix 10 of the thesis.

> Reference: Benz C, Dantas J, Welsh M, Norman R, Hendrie D, Robinson S. “A qualitative study assessing Allied Health Provider perceptions of telepractice functionality in therapy delivery for people with disability.” Health Expectations. 2024;27(1):e13988 doi: https://doi.org/10.1111/hex.13988

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ORIGINAL ARTICLE

WILEY

A qualitative study assessing allied health provider perceptions of telepractice functionality in therapy delivery for people with disability

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Abstract

Introduction: Telepractice service delivery of allied health interventions to people with disability can potentially reduce access barriers and improve service equity. However, questions remain regarding telepractice functionality for people with disability. This study addressed questions related to how allied health clinicians and managers perceive telepractice as functioning in the provision of therapy services to people with disability.

Methods: Thirteen interviews of allied health clinicians and managers from across Australia were conducted between 21 November and 22 February via MS teams. Qualitative methodology and critical realist theoretical paradigm underpin the study. Data analysis was completed using a reflective thematic analysis method and five themes were generated and described utilising an analytic metaphor.

Results: The study themes were described in relation to a shopping for shoes analytic metaphor and the five themes included (1) a shoe for every foot, (2) planned purchases, (3) shoe on the other foot, (4) you need both shoes and (5) help choosing their shoes. In summary, the function of telepractice fits differently for each individual, similar to pairs of shoes.

Conclusions: Telepractice has its own strengths and weaknesses and isn't a direct substitute for in-person sessions, much like left and right shoes are similar but not the same. The results support participant perceptions that telepractice functions best as an adjunct to in-person sessions through a flexible hybrid delivery model in the provision of therapy services to people with a disability. A strategy for improving perceived usefulness may involve positioning telepractice as unique with strengths and weaknesses, not replacing in-person care.

Patient or Public Contribution: The paper forms part of a larger codesign process which included customer and carer participants throughout the design and planning of the project, inclusion of a peer researcher, and the selection of the analytic metaphor including in the findings of this article production.

KEYWORDS
accessibility, allied health, disability, PPI, qualitative, telepractice, teletherapy

1 | INTRODUCTION

The National Disability Insurance Scheme (NDIS) is an Australian federal government-funded programme (roll out completed July 2020) which provides personalised funding plans to people with significant or permanent disability to access supports via a goal-based model.[1] Services available to access under the NDIS include allied health (e.g., physiotherapy, occupational therapy, speech pathology, dietetics), behaviour support and nursing care.[2] NDIS participants are able to utilise their funding plan within a fixed term period (1–3 years) to receive services within categories; with each service (e.g., occupational therapy) allocated a maximum charging rate.[3]

A cornerstone policy of NDIS implementation in Australia is choice and control for participants,[4] which supports the United Nations Convention on the Rights of Persons with Disabilities and challenged disability service providers to include clients in all decisions.[5] Offering genuine choice and control requires a concerted effort to provide appropriate information, support in decision making, and trials of available options to understand how each choice may impact them.[6] Additionally, providing a service which is designed to be universally accessible is necessary to facilitate genuine choice.

Universal design is a principle which promotes equitable access, which is often referred to in the context of the built environment (access to places) but can be applied to services, it considers how barriers may be created which are disabling for specific people.[7] Distribution of therapy services to the disability community both within and across countries can be extremely variable and are significantly impacted by location thus causing inequitable access. In Australia, there is an average population of 3.33 people/km^2 (world average of 62 people/km^2)[8] ranking it the fourth least densely populated country[9] in the world. Staff recruitment and retention issues, waiting lists, travel time and lack of choice in service providers are a cause of disparity and remain ongoing challenges across different areas of Australia.[10]

Telepractice service delivery of allied health interventions to people with disability potentially provides an excellent opportunity to reduce access barriers and improve service equity and access.[11] Telepractice is defined as the use of telecommunications technology to deliver clinical services remotely to a client or carer for the purpose of assessment, intervention, consultation and supervision.[12]

Whether telepractice service delivery is functional for recipients and clinicians may depend on what alternatives are available or if local infrastructure (e.g., internet connection quality) can support virtual therapy service delivery. Recent calls have been made that the extension of universal design principles to the digital environment is essential in promoting equitable provision of digital services.[11] Gaining insight into how telepractice functions in providing allied health services for people with disability and highlighting areas of potential improvement, has the potential to improve the universal design and accessibility for many population groups, including the elderly.[13] However, questions remain regarding the delivery pathway characteristics required to achieve sustained and integrated uptake of telepractice.

Recent evidence has indicated an improvement in the efficacy and effectiveness of interventions provided via telepractice comparative to earlier iterations (through increased reliability and technological advancements)[14,15]; and the coronavirus disease 2019 (COVID-19) pandemic proved widespread uptake is possible.[16-18] One aspect to consider in the pursuit of sustainable telepractice delivery is functionality, or whether telepractice works and how useful it is to end users.

How telepractice works and whether this aligns with the needs of users is a function of the form of telepractice in addition to context; in this case users include people with disability accessing allied health therapy interventions and their telepractice providers. Telepractice forms vary significantly from live videocall, to photographs or videos sent via email and online websites. This study's focus is synchronous videocall between clients and their provider, which was chosen as it provided real-time visual and auditory communication for the purpose of therapy intervention.

Functional contextual factors include geographical location, disability support funding models, service distribution and the opportunity to choose between multiple service delivery options. The functionality and usefulness of telepractice for members of the disability community varies depending on their individual needs and barriers faced. However, if common threads of experience could be identified, there is the potential for sustainable integration of telepractice into service delivery models for people in the disability community. The primary research question addressed in this study was, how do allied health clinicians and managers perceive telepractice as functioning in the provision of therapy services to people with disability? The supporting subquestion was what influence does the provider/client relationship have on the perceived usefulness and subsequent adoption of telepractice for service delivery?

2 | MATERIALS AND METHODS

2.1 | Study design

The study is a qualitative review of experiences collected between November 2021 to February 2022 from disability organisations across Australia. Approval was gained from the Curtin Human Research Ethics Committee(ID# HRE2021-0731) and reported in compliance with the Standards for Reporting Qualitative Research.[19]

2.2 | Theory

Using qualitative methodology, a contextualist epistemological position[20] was used, which assumes a coproduction of meaning by the participants and researchers that cannot be separated. Knowledge is viewed as a contextual representation of truth grounded in participant accounts, while acknowledging the role of the researcher.[21,22]

The ontological stance taken utilises critical realism, which assumes a singular reality and retains the concept of truth while assuming an embedded influence of language and culture in each human experience, resulting in multiple perspectives and interpretations of this reality.[23] Situated realities of participants are analysed by the researcher as findings which are located within their own subjective view of reality.[22] The theoretical position aligns with the study aim as it enabled researchers to place the lived experience of participants centrally while considering the contextual and structural underpinnings of these accounts.[22]

Person-first language conventions are utilised in deference to the preference of experts with lived experience who contributed to this research, to respect and affirm their identity. However, we respect the right to choose by participants and the potential for the alternate preference of identity-first language by members of the disability community.[24]

2.3 | Methods of data collection

Data collection included a Qualtrics demographic survey and semi-structured interviews conducted and recorded via MS teams. The approach enabled in-depth exploration of experiences across a wide geographical and jurisdictional area, within the context of travel limitations.

The semi-structured interviews were guided by an interview schedule developed by the research team. Questions aligned to the salient constructs of the Consolidated Framework of Implementation Research (CFIR),[25] and selected by a Steering Committee of staff and customers. The process was completed to ensure the questions and study focus were relevant to clients, service providers and the wider disability community. A copy of the interview schedule (Supporting Information: Appendix 1) and CFIR constructs (Supporting Information: Appendix 2) are provided as supplementary material. Interviews were transcribed via MS teams and reviewed for accuracy by C. B. Each participant was emailed a copy of their transcript with the opportunity to confirm validity and provide comment; feedback from four participants was included in the analysis.

2.4 | Participant recruitment

Disability services are predominantly provided by large organisations which cater to many different service types. A consortium of 14 not-for-profit disability-specific organisations called Ability First Australia (AFA)[26] facilitated access to disability provider organisations representing the full scope of size and locations across the country. Each member of the AFA Consortium was offered an opportunity to participate in the study. For each eligible AFA organisation inclusion criteria were one manager involved in the design and implementation of telepractice and one therapist who delivered telepractice services. Staff whose role did not include providing direct therapy or management of therapy staff were excluded. Key informant and snowball sampling strategies within organisations were implemented during recruitment, which aimed to provide a variety of viewpoints and potentially identify differences through location, between roles and level of service provision. Participants were offered the option to select a pseudonym for publications, with all names replaced to safeguard anonymity.

2.5 | Demographic characteristics

Fourteen AFA member organisations received invitations; eight responded positively, seven completed at least one interview ($n = 13$ interviews); six organisations and one manager participant did not respond. All participants were currently employed by an AFA organisation, English speaking, and consented to an interview. Demographics characteristics are included in Table 1 with geographical locations included all seven states of Australia excluding the two territories, three participants worked across two states and one participant worked from one state servicing another, both had moved interstate during the past year. Services were provided via telepractice before the COVID-19 pandemic in a small-scale capacity for rural clients in two organisations, with the remaining five providing none-prior.

2.6 | Data analysis methods

2.6.1 | Reflexive thematic analysis

Data analysis was conducted by the first author who engaged with the methodology of reflexive thematic analysis[27] as it aligned with the goals of drawing patterns across the data set, a critical realist orientation and flexibility to describe core aspects within the data. Reflexive thematic analysis provided flexibility to integrate a metaphor method element to the naming of themes and description of findings.

2.6.2 | Metaphor analysis

The use of an analytical metaphor by the authors in reporting findings aimed to improve the accessibility of academic research

TABLE 1 Demographic characteristics.

Variable	*N* (%)
Gender (self-identified)	
Male	0
Female	13
Not specified	0
Profession	
Behaviour support practitioner	1
Dietitian	0
Occupational therapist	3
Physiotherapist	3
Social worker	0
Speech pathologist	4
Nurse	1
Other	1
Role	
Management	6
Clinician	7
Location of service provision[a]	
New South Wales	2
Queensland	2
South Australia	2
Tasmania	2
Victoria	4
Western Australia	4

[a] Three participants identified working across two states and one participant identified working from one state servicing participants in a different state (designated as the location of service rather than the location of staff member).

for broader audiences, including the disability community. Metaphors are used as a way of structuring understanding of experiences,[28] therefore can be utilised as a method of expanding understanding through linking familiar experiences to those less familiar or more complex. Recent examples in qualitative health research include a road trip in families with a Down Syndrome child,[29] welfare systems as a pinball machine[30] and an iceberg representing caring for ageing parents.[31] In these examples and the current study, the authors selected a metaphor during the analytic process with the aim of improved understanding of complex topics reported in the findings[28] and described with the use of symbols from the real world.[6] This metaphor was selected through a collaborative process where lay responders were provided with multiple metaphor options in combination with the analytic themes to select the metaphor of best fit.

2.7 | Analytic process

Data analysis commenced through building an understanding and familiarity while editing initial transcripts for accuracy. Initial codes were informed by the theoretical framework of the CFIR[25] as it encouraged the first author in framing allocation to aspects of telepractice implementation. An inductive process was used to narrow themes and describe semantic and latent meaning from repeatedly reading initial codes.[22]

While reviewing themes, authors C. B. and J. D. discussed the fit of themes addressing core ideas produced by multiple tangential aspects of the experience of telepractice implementation. The phases of refining, defining and naming themes and subsequent writing were completed concurrently in a series of drafts which looked to incorporate the use of metaphor.

3 | RESULTS

The exploration and analysis of interview data by the authors resulted in the identification of five themes relating to allied health provider perceptions of telepractice function and perceived usefulness. The five themes were derived from the data, and subsequently the research team proposed multiple metaphor options, from which lay responders selected *shopping for shoes* as the clearest visualisation that resonated with the findings. The five themes were named[1] a shoe for every foot,[2] planned purchases,[3] shoe on the other foot,[4] you need both shoes and[5] help choosing their shoes.

3.1 | A shoe for every foot

As people walk through life, they wear different shoes, be it comfortable shoes for walking, pretty shoes for fancy parties or the only pair they have. Every pair of feet are different, and for some people the two feet in their pair are different. As such, everyone has specific needs, limitations and considerations they factor into when, how and what shoes they wear. Accessing allied health services for people with disabilities is equally nuanced and individual in its considerations, as individual needs, capacity, desires and treatment options differ widely. The functionality of telepractice for delivering therapy services was thought to depend on a combination of factors, and might be perfect in some circumstances and impractical in others.

Participants emphasised the significance of age and life stage when assessing the suitability of telepractice and its integration into their client's overall life circumstances. Just as there are shoes you loved during childhood, but couldn't imagine wearing as an adult, telepractice can fit differently along life's journey. For example, older adults were described as enjoying clinic visits as a social outing providing human interaction, however, younger adults and adolescents found telepractice reduced the time burden of accessing therapy.

> the clients that are more elderly, they see it as an outing. You know they've been stuck in the house all day and now they're going to their therapy session and it's like a little trip. [Clinician Megan]

Shoes with zippers or Velcro improve accessibility and can be beneficial additions for people who have difficulties in using shoes with laces. Telepractice, like a zipper, has the potential to accommodate the functional needs of individuals with disability, such as autistic people, people with mental health challenges or those who are respiratory compromised. Participants acknowledged that for some, telepractice is a preferred delivery mode and potentially the only achievable delivery mode.

> Another customer I see she's got lots of mental health issues and for that reason she often just like refuses to see any professional and so I've only met her once in-person. Every other session has been over telehealth and half the time she says no thanks. [Manager Jemma]

Conversely, for some clients, participants described telepractice exacerbating challenges like shoelaces that won't stay tied, including for those with physical difficulties or those who live in supported accommodation requiring support worker being present in the absence of their therapist. Challenges in completing sessions via telepractice were described based on a persons' support needs, as well as the capacity and dynamics of the wider support network. Participants raised concerns for families with additional challenges, including those whose first language was not English, similar to being given a pair of lace-up shoes when all you've ever had were pairs with buckles, not impossible but significantly more challenging.

Other families were highlighted as having ‘chaos in my house’ [Manager Liz], with some perceiving increased stress of clients from therapists potentially seeing inside their home. These challenges were proposed as an indication of additional supports requirements for some families ‘logistics and the mental load’ [Adele] to enable telepractice to become more achievable and not judging them as lacking capacity.

This theme highlighted that as with specific types of shoes, telepractice may be the right fit for different people in different stages of their life or with different circumstances, and that some people may require a support person to assist them in creating that fit in accessing telepractice.

3.2 | Planned purchases

Purchasing anything, including a pair of shoes without the proper preparation and resources can result in buyer's remorse. Participants described a functional telepractice session required access to resources for the videocall, assessments before the session and potentially the need to gather intervention-specific resources.

Financial stress was highlighted by participants as a significant determinant of telepractice viability, which included access to necessary supplies and services to attend a videocall. Much as in the same way transport is a necessary cost to attend a shoe store in person, internet access is a major expense for clients and their families which is currently not supported by the NDIS.

> some of our families from a low social economic background, there's a lot more barriers to it and so it's probably being less uptake, some of that is around, having access to Internet and that's often related to having credit on their phone. [Manager Danielle]

Several participants discussed solutions to the access limitations imposed by financial stress, with the NDIS enabling the purchase of an iPad or laptop, but not internet services for telepractice sessions. One clinician [Megan] described approaching charitable organisations to donate funds which supported an internet plan. Two participants described an initiative specific to a single Australian state supporting lower socioeconomic families at risk of poorer quality of life outcomes with internet and computer hardware access via child and family centres (CFCs). These CFCs provided government funding to improve equity in digital access opportunities for areas with higher levels of financially disadvantaged families, in the Australian state with the lowest gross state product per capita and a digital inclusion index five points lower than the national average.[32] The clinician and manager both attributed the CFCs as a significant enabler within disadvantaged communities, and the clinician described a collaborative working relationship that supported families to see her virtually.

> families when they have a telehealth appointment because they don't have the technology or Internet connection, they'll come into the centre … families learn how to access or use the technology and empower them that that they can do it themselves. [Clinician Shona]

Assessing clients is crucial for delivering effective and evidence-based therapy sessions. Despite mixed opinions on conducting assessments via telepractice, participants generally agreed that in-person initial assessments and establishing rapport were essential before remote sessions.

> There are definitely limitations, and I found that much easier to transition to telecare once I had a good sense of the (child), I had evaluated him in-person so much easier than to have those goals established. [Clinician Amina]

If circumstances required telepractice be used for initial assessments, Amina continued to say it was challenging but possible, similarly a person could measure their foot to order shoes online but generally find it easier in-person.

Participants often described an increased mental load and time required to transition in-person processes to virtual. Preparation time, such as sending resources or prompting families to gather specific items, was viewed as a positive it enabled practice outside direct therapy sessions. However, for some families this resource collection created additional financial stress or exclusion.

Completing a new task often causes increased time and effort in preparation and sourcing supplies, including potentially tailored supports for those experiencing additional barriers. However, once that first pair of shoes are purchased and the process is familiar, this knowledge enables each subsequent instance to become more efficient, and the same could be said for telepractice delivered sessions.

3.3 | Shoe on the other foot

Most people require a pair of shoes consisting of a left and a right shoe, both shoes achieve the same result and are equally as useful but aren't the same. The distinct differences between left and right shoe improve their function, and as such if telepractice was considered the left shoe and in-person service delivery was the right, the goal is the same however, the design is different. The fit of a pair of shoes may cause blisters on one foot but not the other, and similarly participants of this study identified both benefits and challenges of telepractice which were different to in-person delivery.

A distinct difference of telepractice delivery is the different locations. Participants felt separation created reduced responsibility for therapists to carry out the actions of therapy and while empowering families to take on that responsibility. Participants described challenges in 'trying to break those norms of bringing your child to therapy, we do therapy' [Clinician Ella] with carers who weren't traditionally engaged and previously used the time as respite. Prior expectations derived from therapy delivered in-person and perceiving telepractice as a direct equivalent decreased the likelihood of success, as highlighted by Shona comparing longer-term clients:

> changing expectations of how our sessions would look and their active need for participation probably was a bit of a barrier for some of the families. [Clinician Shona]

With new clients during the introduction of telepractice:

myself and one of the other speech therapists picked up some new clients during a time when we were only using teletherapy, and their expectation or their engagement in therapy was them being active participants. So, when we were able to see them face to face, that's how they naturally came into the sessions. That's all they knew. [Clinician Shona]

This comparison could be likened to only ever owning left shoes, with the potential that even if having a left and right shoe may improve comfort or function, a person could still prefer the familiarity of the original version. This comparison highlighted the differences and the need to provide realistic expectations before trialling telepractice for those who had historically experienced exclusively in-person delivery. Additionally, it suggested the importance of introducing telepractice as a mode of delivery to new clients from the outset.

The active participation of families, which is encouraged by telepractice, was viewed positively by the majority of participants, with specific mentions of coaching interventions enabling capacity building and empowerment of families. One clinician described coaching and collaboration with disability support staff as a behaviour support clinician and found it to be very beneficial in viewing staff/client interactions in their natural environment:

> So you do get a more authentic understanding of how the customer is behaving and what the nuances that are related to the staff and what they do. So I find it a fabulous way to get a really good understanding. [Clinician Margaret]

When considering a pair of shoes, the right shoe holds value to the right foot rather than being considered poor value to the left foot, and in parallel participants viewed telepractice as having distinct benefits separate to in-person sessions. These benefits included group sessions for Key Word Sign (a sign language based on Auslan), bringing together sparce communities spanning vast geographical distances, enabling clinicians to view a clients' natural environment, and providing continuity of care for people who relocate frequently or seasonally.

Multiple managers discussed telepractice as adding another tool to the toolkit, whereas clinicians were more likely to discuss the need to learn to integrate telepractice as a new tool in future planning and normal practice. The prevailing sentiment remained that telepractice was a beneficial delivery option to provide flexibility in supporting clients to access services.

> I think we've got a long way to go yet in this space and some work to do. But yeah, that's that would be my vision that it just becomes another option to use. [Manager Liz]

Left and right shoes excel at their roles, but could not replace the alternate shoe, participants equally perceived telepractice as existing to complement in-person sessions and providing unique functions.

3.4 | You need both shoes

Exclusively wearing right shoes would be challenging and not always result in comfortable feet, and similarly using telepractice exclusively for therapy delivery would not offer flexibility or the benefits of in-person interaction. During the COVID-19 pandemic a transition to full telepractice was required and demonstrated it is technically possible. You could also wear two right side shoes, however considering a long term sustained integration, participant sentiment indicated a hybrid is optimal.

Telepractice was commonly framed as an opportunity to increase flexibility and described as providing an alternate avenue for issues such as continuity of care, extended travel requirements, when a full hour session isn't appropriate, and three 20-min sessions improves learning, and shorter check-ins for consistency. When pairing the two delivery modes together clinician Shona reflected that goals were met at a higher frequency:

> I've had experience with that with the clients that I've support remotely where we are doing a bit of a combination where I come out to their home … (for) face to face sessions and then we link in via telehealth and … it's worked really well and I'm finding that goals are being met more frequently with those families. [Clinician Shona]

This statement also highlighted the opportunity for outreach to remote communities, which can be especially challenging when multidisciplinary team engagement or senior staff input is required. Funding limitations can necessitate only one therapist travelling to remote communities or for singular clients, and telepractice provided the opportunity to include other team members in a consultation.

> and I guess also as part of that, the ability to also have staff from other parts of the state consult into sessions. [Manager Danielle]

Telepractice was considered a useful avenue for providing services to clients on waiting lists due to staff shortages in their area. One manager described virtual staffing enabling interstate cooperation to meet client demand, similar to an online warehouse of a shoe retailer providing the desired shoes if the in-person store is out of stock.

Clinicians and managers acknowledged that telepractice provided opportunities to improve care versus solely in-person care but was not always the right fit. Examples of services that necessitate in-person delivery included watching the dynamics of a student in their classroom, completing hip surveillance assessments and dysphasia swallowing assessments. Specific disciplines and tasks were viewed as better suited to telepractice than others, and a hybrid delivery was preferred.

> Physio's and OTS desire to do things in person, being able to physically help a person to complete an exercise or to measure and be sure of wheelchair measurement or kitchen measurement and having that confidence behind it is totally different to the work of a speech pathologist. [Manager Jemma]

As the introduction to the theme implied, both is best in terms of left and right shoes and was advocated for by all participants in a hybrid model which empowers clients and clinicians to choose telepractice or in-person delivery depending on the context.

3.5 | Help choosing their shoes

When buying new shoes it is relatively common for people to seek advice and recommendations from trusted sources, be it their network of family and friends, social media influencers and advertisements. There are occasions where a person may not realise they are being influenced to buy one pair of shoes over another by the subconscious preferences of people around them. The theme 'Help choosing their shoes' addresses the potential sources for influence on the decision to access or avoid telepractice services by clients and motivators of influence from providers such as improving client quality of life or potentially more individual or organisationally derived origins.

> Yeah … it was mostly a decision was made to move the whole organization to using Microsoft 365 and as part of that to use Teams. [Manager Danielle]

Discussions between clinicians and clients to utilise telepractice for funding reasons may be influenced by the opportunity to complete more therapy hours if travel is limited through digital delivery.

> We found that, both therapist and customers weren't worried by doing telepractice, so they then started to address their transport levy…, they chose to take half of their sessions as telehealth so they didn't have to pay for 20 minutes travelled. [Manager Samantha]

The price of shoes purchased online or in store may be considered equivalent by salespeople, however incidental costs of attending the retail store may cause a cost disparity for customers. A participant's comment on direct cost to the client's funding plan without considering other associated costs indicated potentially ignored client savings:

> I think other than you (the clinician) save on the travel costs. But I think really, it's the same cost if they came to our centre rather than doing it telehealth, it's going to cost them the same. [Clinician Ella]

Lacking consideration for what it would be like to walk in their (client) shoes and acknowledging potential travel costs to the clinic for families, loss of work time or child minding for other children, potentially fails to highlight benefits of telepractice. In contrast there are instances where participants described increasingly advocating for client choice and supporting those decisions be it telepractice or in-person:

> I think its longevity is growing, I think lots of families are preferring it and I haven't noticed that so much

> historically, and I felt like I have advocated it more, because the family safety and dynamics of who they are trying to keep safe lots of families are really choosing it. And then because they're seeing some benefits and how easy it can be. [Adele]

As with any purchasing of goods or services such as shoes or therapy, knowledge is power and customer purchasing power is crucial in supporting informed choice. Participants did not yet understand how this could be supported for all clients; however, they see the positive outcomes when telepractice as a true choice is achieved.

> It was very much just the opportunity there was but as an organization we're really keen to continue to be able to offer it as a choice for clients and families. I think that would take a lot of work to embed. [Manager Liz]

4 | DISCUSSION

The current study demonstrated that allied health clinicians and managers viewed telepractice as functioning best as an adjunct to in-person sessions, using a hybrid delivery model. Provision of therapy services to people with disability was described as highly variable between individuals and at different points within an individual's life. A hybrid of telepractice and in-person had the potential to cater to users as a plurality of different individuals with dynamic needs rather than one static universal individual, aligning with the concept of universal design.[7] To digitise with purpose[33] requires telepractice services designed not to be a direct repeat of in-person delivery, and highlight distinct strengths and challenges linked to telepractice (*shoe on the other foot*, Section 3.3).

As demonstrated within the first theme (*a shoe for every foot*, Section 3.1) the functionality of telepractice was variable in relation to each context, with the level of usefulness potentially based on the correlation of individual need to the strengths of telepractice as a delivery mode. Findings by Gardner et al.[34] supported the usefulness of telepractice for individuals who experienced challenges accessing the wider community due to increased anxiety and discomfort, a concept corroborated by participant Jemma in connection to an individual with significant mental health challenges. Articles by Daczewitz et al.[35] and Hines et al.[36] additionally uphold the significant usefulness of telepractice in facilitating flexible access to supplement in-person therapy described in the theme *you need both shoes* (Section 3.4) in response to individual contexts of their specific cohorts, full time working parents and regional families.

Appropriate preparation and resourcing are required to improve the function and usefulness of telepractice for therapy delivery into the future, as advocated in the theme *planned purchases* (Section 3.2). The need to invest in equitable provision of connectivity[33] has been called for in multiple academic and policy avenues, especially the gap between internet access for those with disability comparative to the wider community.[13,37] The Australian Government's Disability Strategy Outcomes framework[38] directly references measuring the gap in digital inclusiveness between people with disability and the general community as a measure of focus.

Even with current levels of internet (including poor or limited access in regional areas) telepractice demonstrated its strength in delivering outreach services to supplement in-person delivery for people in remote or under serviced areas in the theme *you need both shoes* (Section 3.4). Multiple published articles demonstrated similar success under the NDIS within Australia,[10,36] and internationally a study by Mitchell-Gillespie et al.,[39] utilised telepractice to redistribute educational opportunities into Africa, providing community rehabilitation to people from refugee populations.

Designing with a universal and accessibility approach has the potential to improve function and usefulness not just in telepractice for people with disability but for the wider community[13]; therefore, incorporating insights of people with disability should be prioritised as their thoughts and adaptations can help other groups who may face barriers to digital innovation. The final theme *help choosing their shoes* (Section 3.5) outlines the influential role providers can have in the decision-making process to uptake services via telepractice or sustainably integrate telepractice in clients accessing therapy. If barriers to access are addressed and opportunities provided to facilitate universal access to telepractice for people with disability, the flow on effect would be increased usability for providers and therefore increase perceived usefulness and potential adoption of telepractice by clients. Recent investments by large technology companies such as Microsoft, Google and Amazon in programmes which prioritise improving accessibility of digital technologies,[13] supports the impression that universal design and accessibility in the digital landscape is becoming a significant focus.

The onus of accessibility goes beyond the design of technological platform and features and extends to the need to support clinicians and clients through well-designed services models. Workforce experience is one of the design principles for a people-centred health system proposed by the Australian Consumer Health Forum. This health system proposal emphasises that to improve perceptions of telepractice usefulness and functionality for clients, clinicians require support.[33] An article by Thomas et al.,[40] highlighted that while person-centred care was currently the predominant motivator for telepractice use, benefits beyond this are most likely needed in addition to improved integration into current workflows to support sustained client and clinician uptake. As clinicians hold a significant level of influence, they require support for capacity building and positive telepractice experiences (*help choosing their shoes*, Section 3.5), a sentiment echoed across respondents in South Asia, Kuwait and Europe in the article by Oommen et al.[41] Good service design principles as outlined by Downe,[42] describe the need for a service which requires no prerequisites to access, linking to the need for telepractice delivery services to include support and upskilling for clients within the design. As outlined in the first theme (*a shoe for every foot*, Section 3.1) individuals in different contexts will have varying requirements to remove barriers to equitable access, and as argued by Chapman et al.[43] the onus of competency and resilience should not be the responsibility of the individual, potentially exacerbating levels of inequality.

5 | LIMITATIONS AND FUTURE DIRECTIONS

The analysis describes a snapshot of time and perspectives of participants who were reflecting on past and present experiences with telepractice, with the COVID-19 pandemic occurring ongoing during the interviews and participants completing interviews over a 4-month period. Timing of each interview and the order completed may have impacted on reflections of each. The challenges of completing research during a pandemic created uncertainty, but additionally depicts the reality of participants in their context and associated challenges.

The transferability[44] of findings specific to experiences of participants and study context may be limited in direct comparison to alternate locations, contexts and times, however, the reader may find opportunities to extrapolate the findings to guide future telepractice policy, implementation or investigations. As the theoretical position of the study assumes multiple interpretations of reality created by each participant's experience and described through the lens of the researcher, a limitation exists in the singular perspective of participants in provider roles. The distinction is critical in the interpretation of findings, with publications such as Barkai et al.,[45] highlighting a significant divergence between provider and client experiences in the context of virtual service delivery. The divergence in experience, combined with perspective pieces such as Kendall et al.,[11] and Noel et al.,[13] which advocate for the inclusion of people with a disability's voices, indicates a strong need to ask clients directly and build understanding of their lived experience. As a future direction, the exploration of client voices could work to further strengthen the findings of the current study.

Technological innovation offers an obvious opportunity for future advancements in functionality and usefulness of telepractice. For technological innovations to be implemented requires awareness of technology capabilities potentially facilitated through linking of disability and technology sectors. Technology design is only part of the solution to reduce the burden of accessibility and as such service design must equally prioritise facilitating universal design. Future investigation into the most appropriate strategies to facilitate design of these services in partnership with clinicians and clients is required.

6 | CONCLUSION

Consciously improving the functionality and usefulness of telepractice in a universally accessible manner has the potential to improve experience for innumerable users not limited to those with a disability. A strategy for improving perceived usefulness as a service delivery mode may involve positioning telepractice as a unique delivery mode with strengths and weaknesses, not as a replacement for in-person care. the adaptability and variability of a hybrid of telepractice and in-person service delivery has the opportunity to support the individuality of people's needs rather than striving for one singular optimal digital solution. these findings support the perception of participants that telepractice functions best as an adjunct to in-person sessions through a flexible hybrid delivery model in the provision of therapy services to people with a disability

AUTHOR CONTRIBUTIONS

Cloe Benz: Conceptualisation; methodology; investigation; writing—original draft; visualisation; formal analysis. **Jaya Dantas**: Validation; writing—review and editing; supervision. **Mai Welsh**: Conceptualisation; project administration; writing—review and editing; supervision. **Richard Norman**: Conceptualisation; supervision; writing—review and editing. **Suzanne Robinson**: Conceptualisation; writing—review and editing; supervision. **Delia Hendrie**: Conceptualisation; writing—review and editing; supervision.

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CONFLICT OF INTEREST STATEMENT

Cloe Benz, Jaya Dantas, Richard Norman, Delia Hendrie and Suzanne Robinson report no conflicts of interest with regard to this paper. Mai Welsh at the time of the study, was employed by Rocky Bay a Not-For-Profit Disability Service provider who function as the industry partner for the project. All co-authors have seen and agree with the contents of the manuscript and there is no financial interest to report. The authors certify that the submission is original work and is not under review at any other publication.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

ETHICS STATEMENT

The study was approved by the Curtin University Human Research Ethics Committee (ID# HRE2021-0731). All participants of the study provided written informed consent before participation.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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6.2 Journal Article Summary Infographic

Telepractice Research Project
National Perspectives on the Functionality of Telepractice

This is a **graphic summary** of an article which looked at what allied health clinicians and clinical department managers of Disability service organisations around Australia think about how functional and useful telepractice is for delivering and accessing therapy. The article is from the **Telepractice Research Project** between Rocky Bay and Curtin University.

Telepractice is accessing and providing clinical services via telecommunications (video) technology.

What we looked for:

"How functional and useful do Allied Health Clinicians and Managers think telepractice is to provide services to people with disability?"

Where we looked:

abilityfirst AUSTRALIA 7 Disability Organisations	13 Managers & Clinicians	Representing All States	60 min Interviews	Nov 2021 – Feb 2022

What we found: We described the findings like a pair of shoes, this was a way of structuring understanding of participant experiences in comparison to a physical visual.

We found the function of telepractice fits differently for each individual, just like pairs of shoes.

Allied Health Clinicians and Managers thought telepractice functioned best in addition to in-person sessions through a flexible hybrid delivery model.

Telepractice has its own strengths and weaknesses and isn't a substitute for in-person session, much like left and right shoes are similar, but not the same.

The flexibility of having both telepractice and in-person options could support the unique needs of individual people with disability instead of trying to make one size fit all.

Think of Telepractice as being different to in-person sessions just like left and right shoes!

More information is available in the full article, follow the QR code or type the DOI link (below) into your internet browser, if you have any questions about the research please email cloe.benz@curtin.edu.au, and for Rocky Bay Telepractice email matthew.locantro@rockybay.org.au.

Benz C, Dantas J, Welsh M, Norman R, Hendrie D, Robinson S. "A qualitative study assessing Allied Health Provider perceptions of telepractice functionality in therapy delivery for people with disability." Submitted with Health Expectations

Curtin University Human Research Ethics Committee Approved (HRE2021-0731).

Rocky Bay HEALTH + COMMUNITY

Curtin University

6.3 Chapter Summary

This chapter was the second of two chapters which analyse the experience of clinical providers and managers in using telepractice; with this article focused on the functionality and usefulness of telepractice for customers who are accessing clinical services from a disability support service provider. Improving awareness of the potential functionality and usefulness of telepractice through strategies such as the use of metaphor, could support increased uptake in the disability community. Understanding from the customer perspective how they wish to access such information and what their experiences of telepractice functionality, are proposed as next steps from these findings.

The next chapter provides an in-depth methodological case study of the use of co-design to support community-based participatory-research, as a method of incorporating customer voices and lived experience into a proposal for improved telepractice.

CHAPTER 7: A CASE STUDY EXPLORATION OF CO-DESIGN

This current chapter provides and in-depth methodological case study of the use of co-design to support community-based participatory-research initiatives, utilising the telepractice research project as an exemplar of co-design implementation within the disability community. The article provides a complimentary and reflective accompaniment to methodology and methods outlined in chapter three of the thesis.

7.1 Preface

The article included below has been published as an open-access journal article in BMC Research Involvement and Engagement and appears in this chapter, from the next page, in the original format. The supplemental material for this article is included in Appendix 11 of the thesis.

> **Reference:** Benz C, Scott-Jeffs W, McKercher K.A., Welsh M, Norman R, Hendrie D, Locantro M, Robinson S. "Community-based participatory-research through co-design: supporting collaboration from all sides of disability." Research Involvement and Engagement. 2024;10(1):47. doi:10.1186/s40900-024-00573-37.2

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Research Involvement
and Engagement

RESEARCH **Open Access**

Community-based participatory-research through co-design: supporting collaboration from all sides of disability

Cloe Benz[1*], Will Scott-Jeffs[2], K. A. McKercher[3], Mai Welsh[2,4], Richard Norman[1], Delia Hendrie[1], Matthew Locantro[2] and Suzanne Robinson[1,5]

Abstract

Background As co-design and community-based participatory research gain traction in health and disability, the challenges and benefits of collaboratively conducting research need to be considered. Current literature supports using co-design to improve service quality and create more satisfactory services. However, while the *'why'* of using co-design is well understood, there is limited literature on '*how*' to co-design. We aimed to describe the application of co-design from start to finish within a specific case study and to reflect on the challenges and benefits created by specific process design choices.

Methods A telepractice re-design project has been a case study example of co-design. The co-design was co-facilitated by an embedded researcher and a peer researcher with lived experience of disability. Embedded in a Western Australian disability organisation, the co-design process included five workshops and a reflection session with a team of 10 lived experience and staff participants (referred to as co-designers) to produce a prototype telepractice model for testing.

Results The findings are divided into two components. The first describes the process design choices made throughout the co-design implementation case study. This is followed by a reflection on the benefits and challenges resulting from specific process design choices. The reflective process describes the co-designers' perspective and the researcher's and organisational experiences. Reflections of the co-designers include balancing idealism and realism, the value of small groups, ensuring accessibility and choice, and learning new skills and gaining new insights. The organisational and research-focused reflections included challenges between time for building relationships and the schedules of academic and organisational decision-making, the messiness of co-design juxtaposed with the processes of ethics applications, and the need for inclusive dissemination of findings.

Conclusions The authors advocate that co-design is a useful and outcome-generating methodology that proactively enables the inclusion of people with disability and service providers through community-based participatory research and action. Through our experiences, we recommend community-based participatory research, specifically co-design, to generate creative thinking and service design.

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Plain language summary

Making better services with communities (called co-design) and doing research with communities (e.g. community-based participatory research) are ways to include people with lived experience in developing and improving the services they use. Academic evidence shows why co-design is valuable, and co-design is increasing in popularity. However, there needs to be more information on how to do co-design. This article describes the process of doing co-design to make telepractice better with a group of lived experience experts and staff at a disability organisation. The co-design process was co-facilitated by two researchers – one with a health background and one with lived experience of disability. Telepractice provides clinical services (such as physiotherapy or nursing) using video calls and other digital technology. The co-design team did five workshops and then reflected on the success of those workshops. Based on the groups' feedback, the article describes what worked and what was hard according to the co-designers and from the perspective of the researchers and the disability organisation. Topics discussed include the challenge of balancing ideas with realistic expectations, the value of small groups, accessibility and choice opportunities and learning new skills and insights. The research and organisational topics include the need to take time and how that doesn't fit neatly with academic and business schedules, how the messiness of co-design can clash with approval processes, and different ways of telling people about the project that are more inclusive than traditional research. The authors conclude that co-design and community-based participatory research go well together in including people with lived experience in re-designing services they use.

Keywords Co-design, Community-based participatory-research, Telepractice, Disability, Lived experience, Method, Embedded researcher, Digital health, Patient and public involvement

Introduction

Co-design has the potential to positively impact co-designers and their community, researchers, and organisations. Co-design is defined as designing with, not for, people [1] and can reinvigorate business-as-usual processes, leading to new ideas in industry, community and academia. As co-design and community-based participatory research gain traction, the challenges and benefits of collaborative research between people with lived experience and organisations must be considered [2].

Disability and healthcare providers previously made decisions for individuals as passive targets of an intervention [3]. By contrast, the involvement of consumers in their care [4] has been included as part of accreditation processes [4] and shown to improve outcomes and satisfaction. For research to sufficiently translate into practice, consumers and providers should be involved actively, not passively [4, 5].

Approaches such as community-based participatory research promote "a collaborative approach that equitably involves community members, organisational representatives and researchers in all aspects of the research process" [6] (page 1). This approach originated in public health research and claims to empower all participants to have a stake in project success, facilitating a more active integration of research into practice and decreasing the knowledge to practice gap[6]. Patient and public involvement (PPI) increases the probability that research focus, community priorities and clinical problems align, which is increasingly demanded by research funders and health systems [7].

As community-based participatory research is an overarching approach to conducting research, it requires a complementary method, such as co-production, to achieve its aims. Co-production has been attributed to the work of Ostrom et al. [8], with the term co-design falling under the co-production umbrella. However, co-design can be traced back to the participatory design movement [9]. The term co-production in the context of this article includes co-planning, co-discovery, co-design, co-delivery, and co-evaluation [10]. Within this framework, the concept of co-design delineates the collaborative process of discovery, creating, ideating and prototyping to design or redesign an output [11]. The four principles of co-design, as per McKercher [1], are sharing power, prioritising relationships, using participatory means and building capacity [1]. This specific method of co-design [1] has been used across multiple social and healthcare publications [10, 12–14].

A systematic review by Ramos et al. [15] describes the benefits of co-design in a community-based participatory-research approach, including improved quality and more satisfactory services. However, as identified by Rahman et al. [16], the '*why*' is well known, but there is limited knowledge of '*how*' to co-design. Multiple articles provide high-level descriptions of workshops or briefly mention the co-design process [13, 17–19]. Pearce et al. [5] include an in-depth table of activities across an entire co-creation process, however within each part i.e., co-design, limited descriptions were included. A recent publication by Marwaa et al. [20] provides an in-depth description of two workshops focused on product development, and Tariq et al. [21] provides details of the process of co-designing a research agenda. Davis et al.

[11] discuss co-design workshop delivery strategies summarised across multiple studies without articulating the process from start to finish. Finally, Abimbola et al. [22] provided the most comprehensive description of a co-design process, including a timeline of events and activities; however, this project only involved clinical staff and did not include community-based participation.

As "We know the why, but we need to know the how-to" [16] (page 2), of co-design, our primary aim was to describe the application of co-design from start to finish within a specific case study. Our secondary aim was to reflect on the challenges and benefits created by specific process design choices and to provide recommendations for future applications of co-design.

Overview of telepractice project

The case study, a telepractice redesign project, was based at Rocky Bay, a disability support service provider in Perth, Australia [23]. The project aimed to understand the strengths and pain points of telepractice within Rocky Bay. We expanded this to include telepractice in the wider Australian disability sector. The project also aimed to establish potential improvements to increase the uptake and sustainability of Rocky Bay's telepractice service into the future. Rocky Bay predominantly serves people under the Australian National Disability Insurance Scheme (NDIS) [24] by providing a variety of services, including allied health (e.g. physiotherapy, dietetics, speech pathology, etc.), nursing care (including continence and wound care), behaviour support and support coordination [23]—Rocky Bay services metropolitan Perth and regional Western Australia [23].

The first author, CB, predominantly conducted this research through an embedded researcher model [25] between Curtin University and Rocky Bay. An embedded researcher has been defined as "those who work inside host organisations as members of staff while also maintaining an affiliation with an academic institution" [25] (page 1). They had some prior contextual understanding which stemmed from being a physiotherapist who had previously delivered telehealth in an acute health setting. A peer researcher, WSJ, with lived experience of disability, worked alongside CB. They had no previous experience in research or co-design, this was their first paid employment and they had an interest in digital technology. Peer Researcher is a broad term describing the inclusion of a priority group or social network member as part of the research team to enhance the depth of understanding of the communities to which they belong [26]. Including a peer researcher in the team promoted equity, collective ownership, and better framing of the research findings to assist with connecting with people with lived experience. These outcomes align with key components of community-based participatory research and co-design [27–30].

Person-first language was used as the preference of experts with lived experience who contributed to this research to respect and affirm their identity. However, we respect the right to choose and the potential for others to prefer identity-first language [31].

A summary of the structure of the phases completed before co-design workshops are represented in Fig. 1 below. Ethical approval for the project was received iteratively before each phase on the timeline (Fig. 1) from the Curtin Human Research Ethics Committee (HRE2021-0731). The reporting of this article has been completed in line with the Guidance for Reporting Involvement of Patients and the Public (GRIPP2) checklist [7].

Here, we present an outline of the chosen research methods with descriptions of each process design choice and supporting reasons and examples specific to the study. The format is in chronological order, with further details of each step provided in Appendix 1 (Supplementary Material 1).

Methods and results

Process of co-production and preparation for co-design

Co-production was chosen as the planning method for the study, as the inclusion of community members (Rocky Bay Lived experience experts and Staff) in each step of

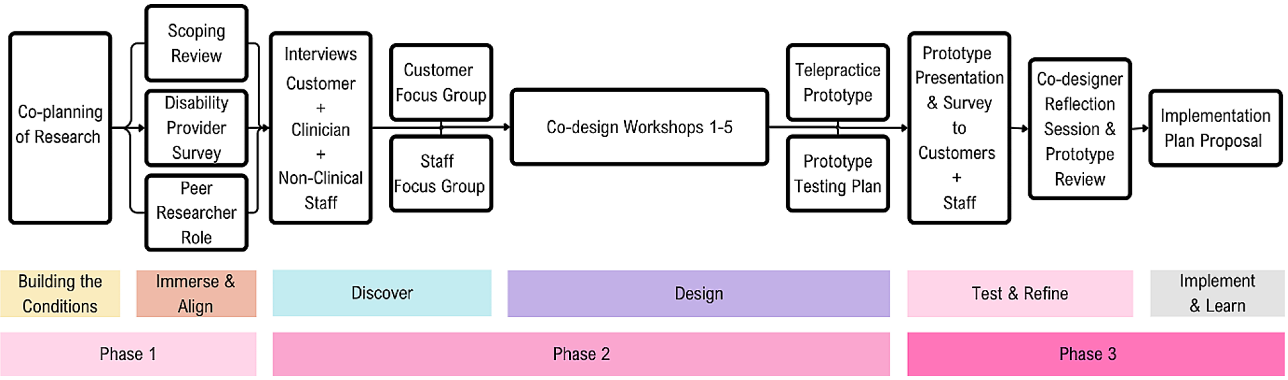


Fig. 1 Summary of telepractice co-design project structure [1]

the research process would increase buy-in and make the research more likely to meet their needs [5]. An example of co-planning (part of co-production) includes the study steering committee, with a lived experience expert, clinician and project sponsor representatives collaborating on the selection of study aim, methods and recruitment processes. Another example of co-planning, co-design, and co-delivery was recruiting a peer researcher with disability, who worked with the embedded researcher throughout the study design and delivery.

The second process design choice was to attempt to build safe enough conditions for community participation, as people who feel unsafe or unwelcome are less likely to be able to participate fully in the research [1]. Building conditions for safety was applied by repeatedly acknowledging power imbalances, holding space for community input, and anticipating and offering accessibility adjustments without judgment.

Getting started

Understanding and synthesising what is already known about telepractice experiences and learning from lived experience was prioritised as the first step in the process. We paired a scoping review of the literature with scoping the lived experiences of the community [32]. Our reasoning was to understand whether the findings aligned and, secondly, to learn what had already been done and to ask what was next, rather than starting from the beginning [1]. Examples of strategies used in this step included interviewing clinicians and service provider Managers across Australia to establish how they implemented telepractice during the pandemic and understand their views of what worked and what did not. The second learning process occurred onsite at Rocky Bay, with people with lived experience, clinicians and other support staff, whom the embedded researcher and peer researcher interviewed to understand experiences of telepractice at Rocky Bay.

The authors presented the interview findings during focus groups with Rocky Bay participants to share the learnings and confirm we had understood them correctly. The groups were divided into staff and lived experience cohorts, allowing for peer discussions and sharing of common experiences. This helped build relationships and a sense of familiarity moving into the workshop series.

Co-design workshops

This section outlines specific components of the co-design workshop preparation before describing each of the five workshops and the final reflection session.

Staff and community co-designers

Two process design choices were implemented to form the co-design group. The first was to prioritise lived experience input as there are generally fewer opportunities for lived experience leadership in service design [16], and because the disability community have demanded they be included where the focus impacts them [33]. To acknowledge the asymmetry of power between community members, people with lived experience of disability and professionals, we ensured the co-design group had at least the same number of lived experience experts as staff.

The second priority for the co-design group was to include people for whom involvement can be difficult to access (e.g. people who are isolated for health reasons and cannot attend in-person sessions, people who live in supported accommodation, part-time staff, and people navigating the dual-role of staff member while disclosing lived experience). It was important to learn from perspectives not commonly heard from and support equity of access for participants [4].

Workshop series structure

When structuring the workshop series, lived experience co-designers nominated meeting times outside standard work hours to reduce the impact of co-design on work commitments and loss of income while participating. The workshops were designed to be delivered as a hybrid of in-person and online to give co-designers a choice on how they wanted to interact. The workshops were designed as a series of five sequential 90-minute workshops, where co-designers voted for the first workshop to be predominantly in-person and the remainder of the workshops online. Some co-designers chose to attend the initial session in person to build rapport. However, the virtual option remained available. The subsequent online sessions reduced the travel burden on co-designers, which the co-designers prioritised over further face-to-face meetings.

Workshop facilitators

To maintain familiarity and ensure predictability for co-designers, the workshops were co-facilitated by the embedded researcher and peer researcher. The co-facilitators built on relationships formed through previous interactions (interviews and focus groups), and each facilitator represented part of the co-designer group as a clinician or a person with disability. An extra support person was tasked with supporting the co-designers with disability to break down tasks and increase the accessibility of activities. The reason for selecting the support person was that they could contribute their skills as a school teacher to support the communication and completion of activities, and they had no previous experience with disability services to influence the co-designers opinions. This role was adapted from the provocateur role described by McKercher [1].

Pre-workshop preparations

To prepare for the workshops, each co-designer was asked to complete a brief survey to ensure the co-facilitators understood co-designers collect preferences and needs ahead of the session to enable preparation and make accommodations. The survey included pronouns, accessibility needs and refreshment preferences. Following the survey, the co-facilitators distributed a welcome video; the peer researcher, a familiar person, was videoed explaining what to expect, what not to expect and expected behaviours for the group to support a safe environment [1]. This process design choice was made to allow co-designers to alleviate any potential anxieties due to not having enough information and to increase predictability.

Workshop resources and supports

As the first workshop was in-person, specific process choices were made to ensure co-designers felt welcome and to uphold the dignity of co-designers with lived experience [34]. Examples of process design choices include facilitating transport and parking requests, providing easy access to the building and room, making a sensory breakout room available and having the peer researcher waiting at the entrance to welcome and guide people to the workshop room.

After reaching the workshop room, all co-designers received an individualised resource pack to equalise access to workshop materials, aiming again to balance power in a non-discriminatory way [11]. The resource pack included name tags with pronouns, individualised refreshments, a fidget toy [35] whiteboard markers and a human bingo activity described in a later section. An easy-to-apply name tag design was selected after consulting a co-designer with an upper limb difference. Further details on the resource packs are included in Appendix 1 (Supplementary Material 1).

Enabling different kinds of participation

We provided non-verbal response cards to each co-designer as communication preferences vary significantly within the disability community. The cards were intended to benefit any co-designer who struggled to use the response buttons on MS teams. The co-facilitators co-created the Yes, No, and In-the-middle response cards (Fig. 2) and were guided by recommendations by Schwartz and Kramer [29]. They found that people with intellectual disability were more likely to respond "yes" if the negative option included a frowning face or red-coloured images, as choosing these types of alternatives was perceived as being negative or would cause offence [29].

A summary of the structure and purpose of each of the five workshops is shown in Fig. 3, followed by a more in-depth discussion of the strategies employed in each workshop.

Workshop 1: the beginning

Human Bingo was the first workshop activity, as it aimed to support relationship building in an inclusive way for both in-person and online attendees. The activity asked each co-designer to place a name in each worksheet box of someone who fit the described characteristic of that square(for example, someone who likes cooking). To include the two online attendees, laptops were set up with individual videocall streams and noise cancelling headphones enabling the online co-designers to interact one-on-one with others during the activities.

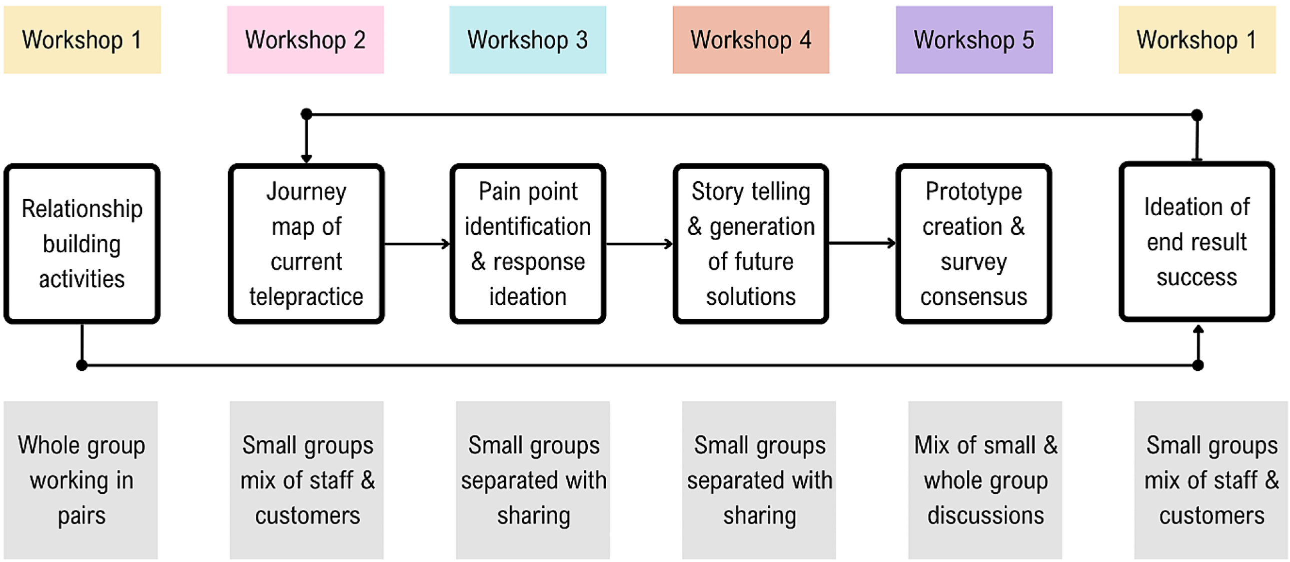


Fig. 2 Non-verbal response cards

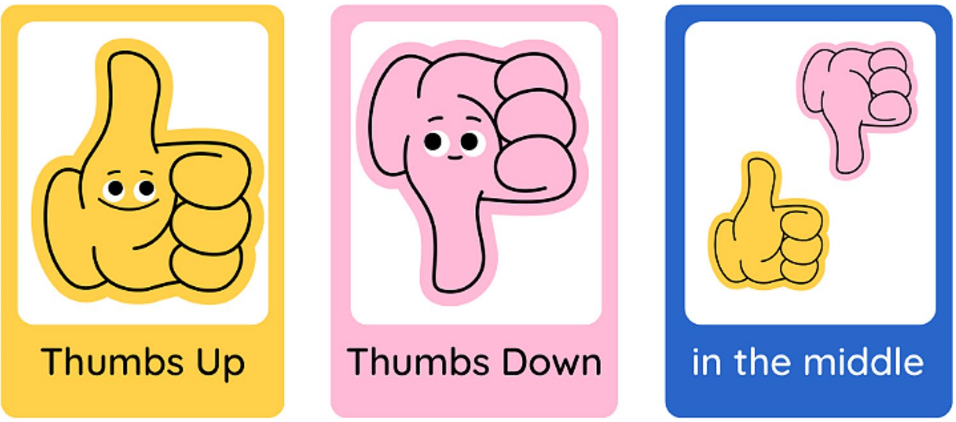
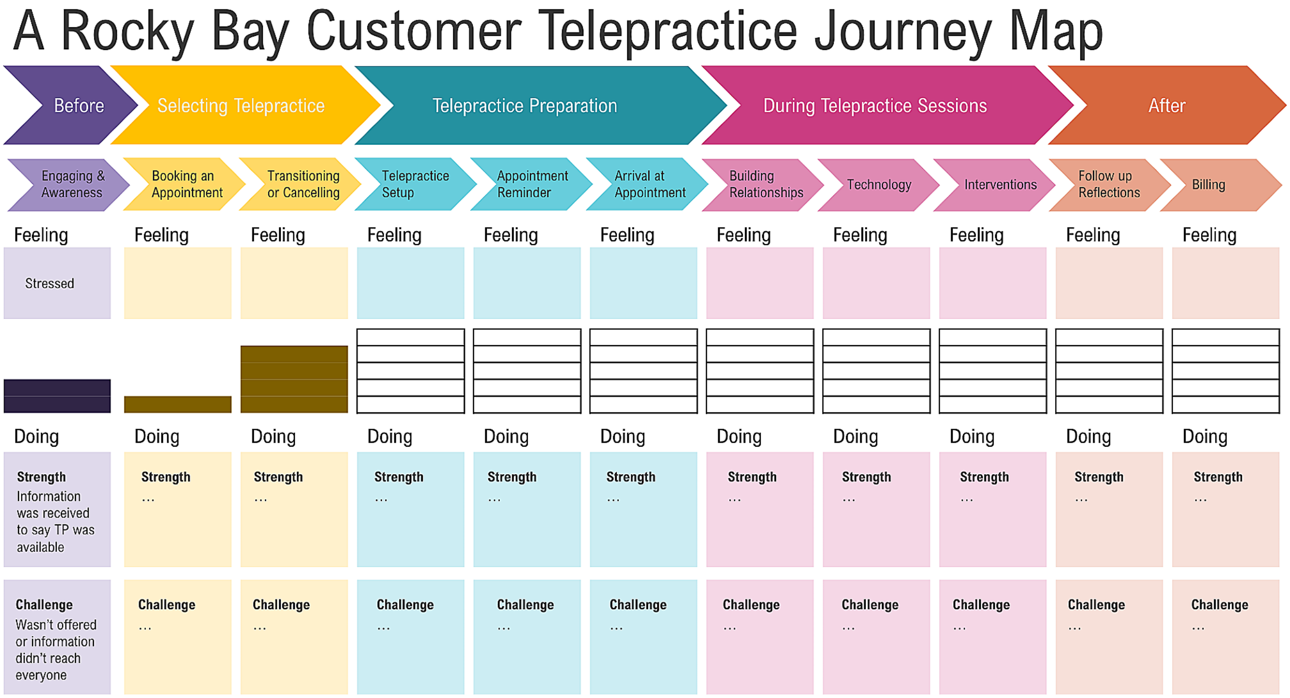


Fig. 3 Outline of workshop and group structures



A Rocky Bay Customer Telepractice Journey Map

Before	Selecting Telepractice		Telepractice Preparation			During Telepractice Sessions			After	
Engaging & Awareness	Booking an Appointment	Transitioning or Cancelling	Telepractice Setup	Appointment Reminder	Arrival at Appointment	Building Relationships	Technology	Interventions	Follow up Reflections	Billing
Feeling	Feeling	Feeling	Feeling	Feeling	Feeling	Feeling	Feeling	Feeling	Feeling	Feeling
Stressed										
Doing	Doing	Doing	Doing	Doing	Doing	Doing	Doing	Doing	Doing	Doing
Strength Information was received to say TP was available	**Strength** …	**Strength** …	**Strength** …	**Strength** …	**Strength** …	**Strength** …	**Strength** …	**Strength** …	**Strength** …	**Strength** …
Challenge Wasn't offered or information didn't reach everyone	**Challenge** …	**Challenge** …	**Challenge** …	**Challenge** …	**Challenge** …	**Challenge** …	**Challenge** …	**Challenge** …	**Challenge** …	**Challenge** …

Fig. 4 Draft journey map visualisation

The second activity used *The Real Deal* cards by Peak Learning [36] to ask the co-designers to sort cards to prioritise the top five experiences and feelings they would want in a future version of telepractice. This activity aimed to set initial priorities for the redesign of telepractice [1]. Small groups with a mix of lived experience experts and staff were tasked with negotiating and collaborating to produce their top five desired experiences and feelings for future service success.

A follow-up email was sent after the session to thank co-designers, provide closure, invite feedback and let co-designers know what to expect from the next session.

Workshop 2: mapping the journey

In the second workshop, held online, the co-facilitators explained the journey mapping process and showed a draft of how the visual representation would likely look (Fig. 4). As the first step, co-designers were tasked with completing a series of activities to analyse lived experience interview data on the current experience of telepractice for lived experience experts. Small mixed groups were created, prioritising the needs of the lived experience experts to have staff who would be the best fit in supporting them to work through the task [1]. The small groups were allocated interview quotes corresponding to the steps of a customer journey through telepractice and asked to identify strengths, challenges and emotions associated with the current Telepractice service journey at Rocky Bay [1]. Further details on the journey map analysis are described in Appendix 1 (Supplementary Material 1) and in a published article co-authored by the co-designers (Benz et al. [37]).

After workshop two, the embedded researcher drafted a journey map by compiling the co-designer group responses to the analysis activity, which was then circulated for feedback and confirmation. The completed journey map is published with further details on the process in an article co-authored with the co-designers, Benz et al. [37].

Workshop 3: ideas for addressing pain points

For the third workshop, the co-facilitators selected activities to be completed separately by lived experience and staff co-designers. The lived experience expert activity involved exploring preferences for improving pain points identified through the journey map. The lived experience expert activity was facilitated by the peer researcher and support person and included questions such as, *how would it be best to learn how to use telepractice?* Visual prompt cards were shared to support idea creation, where lived experience expert co-designers could choose any option or suggest an alternative (Fig. 5).

Simultaneously, the staff co-designers completed a parallel activity to address pain points from a service delivery point of view. These pain points were identified in the clinical and non-clinical staff interviews and from the journey map summary of lived experience expert interviews (analysed in Workshop 2). Staff co-designers completed a mind map based on service blueprinting guidelines by Flowers and Miller [38]. The activity used service blueprinting to identify a list of opportunities for improvement, with four prompts for co-designers to commence planning the actions required to implement these improvements. The foci of the four prompts were roles, policies, technology and value proposition [38] (described further in Appendix 1 (Supplementary Material 1)). Each of the four prompts were completed for the ten proposed opportunities for improvement to draft plans for future telepractice service delivery.

Workshop 4: story telling and generation of future state solutions

In the fourth workshop, we introduced the concept of prototyping [39] as a designerly way to test co-designers' ideas for improving telepractice according to desirability, feasibility and viability with a wider audience of lived experience experts and staff. The co-designers helped to plan the prototyping, and accessibility was a key consideration in selecting a prototype, as the group were conscious of the target audience.

Creating the prototype was collaborative, allowing co-designers to produce an output representing their ideas. They selected a video storyboard prototype with a staff and customer version formatted similarly to a children's book. It included cartoon animations completed on PowerPoint, voiceover narration, closed captioning and an introductory explanation from two co-designers.

After workshop four, the co-designers collaborated on the customer and staff prototypes during the two weeks between workshops four and five, with support and input from the facilitators. The prototype files were co-produced, with different co-designers working on the visual aspects, the script for the main audio narration and the introductory explanation.

Workshop 5: finishing the story

The co-design group reviewed the draft prototypes in the final workshop, with specific attention paid to the story's cohesiveness.

Fig. 5 Option cards for Lived experience expert co-designer workshop activity

The feedback questionnaire was then created to be completed by viewers outside of the co-design group after engaging with either the staff or the customer prototype. The survey allowed Rocky Bay customers and staff to contribute ideas. Following thoughtful discussions, consensus was reached by all co-designers on the final survey questions (Appendix 2 (Supplementary Material 1)).

A reflection activity concluded the final workshop, allowing co-designers to provide feedback on the co-design process, elements for improvement and aspects they valued in participating in the project. Their reflections on the benefits and challenges of co-design in this study are included in the section *Co-designer's perspectives of the workshop series*, with the reflection questions included in Appendix 3 (Supplementary Material 1).

Post prototype reflection session

The prototype feedback responses were reviewed with co-designers in a final reflection session. The group then discussed adaptations to the implementation plan for proposal to Rocky Bay. Following the survey discussion, co-designers reviewed proposed service principles for the new telepractice implementation recommendations. These principles aim to align any future decisions in the implementation and service provision stages of the telepractice project with the intentions of the co-designers. An additional reflection activity was completed, specific to the telepractice proposal they had produced and the prototyping process. Feedback relevant to subsequent discussions of the challenges and benefits of co-design is included in the following section: *Co-designer's perspectives of the workshop series*, with the reflection prompts in Appendix 3 (Supplementary Material 1).

Benefits and challenges

Learnings derived from completing a study of this kind are complex. However, it is necessary to reflect on which strategies used in the project were beneficial and which strategies created challenges - anticipated and unexpected. These reflections are discussed in two sections, the first being the challenges and benefits reflected upon by co-designers. The second set of reflections relates to organisational and research project-level benefits and challenges from the perspective of clinical department managers and researchers involved in the project.

Co-designer's perspectives of the workshop series

Co-designers were positive overall about the workshop series. Responses to a prompt for one-word descriptors of their experience included "captivating, innovative, fulfilling, exciting, insightful, helpful, eye-opening and informative".

Co-designing as a team

A foundational strategy implemented in this project was the intentional collaboration of lived experience experts with staff; this linked to the co-design principle of prioritising relationships and sharing power. Multiple reflections commented on feeling like a team and that having diverse perspectives across the group was beneficial.

It was especially interesting to hear the perspective of clinicians (for us, the other side of Telepractice). [Lived experience expert Co-designer]

Additionally, the combination of facilitators, including an embedded researcher with an allied health clinical background, a peer researcher with lived experience and a support person with strengths in breaking down tasks, provided different facets of support and task modelling to the co-designers throughout the process.

Balancing idealism and realism

There is an inherent challenge in collaboration between lived experience experts and service providers, whereby co-designers formulate ideas for service improvement and then, in good faith, propose required changes to be implemented. Strategies to support imagination and idealism while being honest about the constraints of what can be delivered were implemented in the context of this project. This was essential to reinforce to co-designers that their contributions and ideas are valid while tempering their hopes with the truth that organisational change is challenging and funding for change is limited. Co-designers were encouraged to be cognisant of ideas that would require high investment (cost and time) and which ideas faced fewer barriers to implementation. This strategy did not prevent the ideation of changes and prioritising what mattered most to them, and co-designers felt it was beneficial in adding a level of consideration regarding what investments they deemed necessary versus those that would be nice to have. For example, having a person to call for help was viewed as necessary, while a nice to have was more advanced technological features.

> *I feel that the prototype is useful; however, I worry that nothing will be carried over to the Rocky Bay Service. I feel like more customers will want to access telepractice, and Rocky Bay now needs to start the implementation process to ensure that telepractice is utilised, including processes, education and training.* [Clinician Co-designer]

The value of small groups

Working in small groups was another beneficial strategy, aiming to create a more hospitable environment for co-designers to voice their thoughts. The small groups varied across activities and workshops, with facilitators intentionally pairing groups that would best support the lived experience of expert co-designers completing activities. As described in the workshop sections, some activities suited mixed groups, whereas others suited lived experience expert and staff-specific groups. Two reflective comments demonstrated the benefit of the small groups, one from a clinician who reflected on supporting a fellow co-designer:

> *I found that in our group, all of us had a say; however, [Lived Experience Co-designer name] was a bit overwhelmed at times, so I tried to support her with that.* [Clinician Co-designer]

And a lived experience expert co-designer additionally reflected:

> *The breakout rooms were a very good idea. It can be quite intimidating speaking in front of the main group. I found it much easier to participate in the smaller groups.* [Lived experience expert Co-designer]

The second session included an unplanned whole group activity, which challenged co-designers. Co-designers reflections of this experience demonstrate the benefits of smaller groups:

> *I did feel that at the end when the whole group did the task, there wasn't as much collaboration as there were quite a few more assertive participants, so the quieter ones just sat back.* [Clinician Co-designer]

Accessibility and choice

A challenge navigated throughout the workshop series with a diverse group of co-designers was meeting their varying individual health and other needs. This required responding in sensitive, non-judgemental, and supportive ways to encourage co-designers to engage fully. Examples of support include the presence of a support person and adaption of resource packs for co-designers who have difficulty swallowing (re: refreshments), as well as the previously mentioned non-verbal response cards and accessible name tags.

Accessibility supports were also provided for the peer researcher during facilitation activities, including pre-written scripts to provide clarity when explaining tasks to the co-design group, written reminders and regular check-ins. A lived experience expert co-designer reflected that it was beneficial that they could tell the peer researcher was nervous but appreciated that he was brave and made them feel like they did not need to be perfect if the peer researcher was willing to give it a go.

When facilitating the sessions, the embedded researcher and peer researcher identified that the workshops were long and, at times, mentally strenuous. One co-designer requested *"more breaks during each session"*. Breaks were offered frequently; however, upon reflection, we would schedule regular breaks to remove the need for co-designers to accept the need for a break in front of the group. The instructions for each activity were visual, verbal and written and given at the start of a task. However, once the co-designers were allocated to breakout rooms, they could no longer review the instructions. Many co-designers suggested that having the instructions in each breakout room's chat window would have been a valuable visual reminder.

> *One thing I think might of helped a little is having the instructions in the chat as I know I that I listened but couldn't recall some of the instructions for the group task.* [Lived experience expert Co-designer]

Learning new skills and gaining new insight

The co-designers considered that the benefits of working together included learning new skills and widening their understanding of research, the services they provide or use, and the differences between the priorities of lived experience experts and staff. Two lived experience experts commented that the opportunity to learn collaboration skills and create cartoons using PowerPoint were valuable skills for them to utilise in the future. One clinician reflected that the process of co-design had improved their clinical practice and increased their use of telepractice:

> *My practice is 100% better. I am more confident in using telepractice and more confident that, as a process, it doesn't reduce the impact of the service- in some ways, it has enhanced it when customers are more relaxed in their own environments. I have not seen my stats, but my use of telepractice has increased significantly, too.* [Clinician Co-designer]

The management co-designer acknowledged that although ideas across the group may be similar, prioritisation of their importance can vary dramatically:

> *Whilst all the feedback and potential improvements were very similar, some things that I viewed as not an issue, was very different to a customer's perspective.* [Management Co-designer]

Overall, the workshop series challenged co-designers. However, the provision of a supportive and accessible environment resulted in mutual benefits for the research, organisation, and co-designers themselves. The strategy for facilitating the workshops was to pose challenges, support the co-designers in rising to meet them, and take into account their capabilities if provided with the right opportunity. A lived experience expert co-designer summarised the effectiveness of this strategy:

> *I found the activities to be challenging without being too difficult. Each activity provided enough guidance and structure to encourage interesting group discussions and make collaboration easy.* [Lived experience expert Co-designer]

Research and organisational reflections of benefits and challenges of co-design

A significant challenge in completing this project was that building foundational relationships and trust takes time. While the authors view this trust as the foundation on which community-based participatory research and co-design are built, they note the direct tension of the time needed to develop these foundational relationships with the timeline expectations of academic and organisational decision-making. The flexibility required to deliver a person-centred research experience for the co-designers resulted in regular instances when timeline extensions were required to prioritise co-designer needs over efficiency. The result of prioritising co-designer needs over research timeline efficiency was an extended timeline that was significantly longer than expected, which sometimes created a disconnect between the flexibility of co-design and the rigidity in traditional academic and organisational processes.

The impacts of a longer-than-expected timeline for completion of the co-design process included financial, project scope, and sponsorship challenges. The project's initial scope included a co-implementation and co-evaluation phase; however, due to the three-year time constraint, this was modified to conclude following the prototyping process. Whilst the three-year period set expectations for project sponsors and other collaborators from Rocky Bay, the wider context for the project varied significantly and rapidly over this period. This included two changes in Rocky Bay supervisor and one change in Rocky Bay project sponsor. Additionally, one of the academic supervisors left Curtin. This challenge indicates that the project would benefit from key role succession planning.

The peer researcher role was beneficial in providing an opportunity for a person with lived experience to join the study in a strength-based role and experience academic and business processes. However, challenges arose with the timeline extensions, which required this part-time, casual role to be extended by seven months. While the contract extension posed budgetary challenges, the role was viewed as vital to the completion of the project.

While an essential component of research, particularly involving vulnerable populations, ethical approvals proved challenging due to the non-traditional research methods involved in co-design. It was evident to the authors that while the ethics committee staff adhered to their processes, they were bound by a system that did not have adequate flexibility to work with newer research methods, such as co-design. Multiple methods in this study were heavily integrated into the community, including embedded research, peer research and co-design.

The present ethics process provided a comprehensive review focusing on planned interactions within research sessions (e.g. interviews and workshops). Unfortunately, this failed to account for a wider view, including the initial co-production prior to ethical application and anecdotal interactions that occurred regularly in the organic co-design process. In addition to the repeated submissions required to approve the sequential study format, these interactions created a significant workload for the research team and ethics office. These challenges were compounded by the need to navigate Rocky Bay's organisational processes and changing business needs within ethical approval commitments.

In the authors' opinion, prioritising the inclusion of lived experience experts in co-creating outputs to disseminate findings was beneficial. The co-creation enabled an authentic representation of the study to audiences regarding community-based participatory research and co-design method implementation. For example, the presentation of a panel discussion at a conference in which the peer researcher could prerecord his responses to questions as his preferred method of participation. All posters presented by the project were formatted to be accessible to lay consumers and were collaboratively produced, with the additional benefit of the posters being displayed across Rocky Bay hubs for customers and staff to gain study insights.

Due to the co-design method's dynamic nature, some budgetary uncertainty was challenging to navigate. However, financial and non-financial remuneration for all non-staff participants in the project was prioritised. As previously discussed, the position of peer researcher was a paid role; additionally, all lived experience expert participants were remunerated at a rate of AUD 30/hour in the form of gift cards. The carer representative on the steering committee recommended using gift cards to avoid income declaration requirements from government benefits people may receive. Non-financial remuneration for the valuable time and contribution of the co-designer group included co-authorship on an article written regarding the Journey Map they produced (Benz et al. [37]) and acknowledgement in any other appropriate outputs. The implementation proposal provided to Rocky Bay included recommendations for continued inclusion and remuneration of co-designers.

Setting a new bar for inclusion

Another benefit to reflect upon, which may be the most significant legacy of the project, was setting the precedence for the inclusion of people with disability in decision-making roles in future projects and research conducted by the University and Rocky Bay. After this project commenced, other Rocky Bay clinical projects have similarly elevated the voices of lived experience in planning and conducting subsequent quality improvement initiatives.

> *I'm lucky enough to have been part of a lot of projects. But I guess I probably haven't been a part of continuous workshops, pulling in all perspectives of the organisation perfectly... So, collaboration and getting insight from others I haven't usually was a very unique experience, and I definitely found value if this were to continue in other projects.* [Manager Co-designer]

Discussion

In summary, the findings from using a co-design method for the telepractice research study produced a series of benefits and presented the researchers with multiple challenges. The findings also addressed a literature gap, presenting in-depth descriptive methods to demonstrate how co-design can be applied to a specific case.

Drawn from these findings, the authors identified six main points which form the basis of this discussion. These include (1) the fact that the necessary time and resources required to commit to co-design process completion adequately were underestimated at the outset, (2) there is a need to support the health, well-being and dignity of lived experience expert participants, (3) academic ethical processes have yet to adapt to address more participatory and integrated research methods, (4) strategies used to foster strong collaborative relationships across a diverse group were valued by all participants, (5) better delineation between terminologies such as co-design and community-based participatory research or patient and public involvement would improve the clarity of research methods and author intent and, (6) broader non-traditional impacts that participatory research can create should be better quantified and valued in the context of research impact. Each point will now be discussed in further detail.

In underestimating the time and resources required to complete the telepractice study, a scope reduction was required. This scope reduction removed the study's originally planned co-implementation and co-evaluation phases. While Harrison et al. [40] and Bodden and Elliott [41] advocate for more frequent and comprehensive evaluation of co-designed initiatives, the authors acknowledge that this became no longer feasible within the study constraints. A growing body of literature indicates expected timelines for completed co-production projects from co-planning to co-evaluation. An example by Pearce et al. [5] indicated that a timeline of five years was reasonable. In contrast, a more limited co-design process was completed with a shorter timeline by Tindall et al. [13]. Although neither of these articles were published when this study commenced, they are complementary in building an evidence base for future research to anticipate an adequate timeline.

While co-design and other co-production processes are resource and time-intensive, the investment is essential to prioritise the health and other needs of potentially vulnerable population groups in the context of an imbalance of power [42]. In exploring the concept of dignity for people with disability, Chapman et al. [34] indicated that recognising the right to make decisions and proactively eliminating or minimising barriers to inclusion are key to protecting dignity. Community participation in decision-making processes such as this study can result in messy and unpredictable outcomes. However, the onus must be placed on policymakers, organisations, and academia to acknowledge this sufficiently rather than demand conformity [15].

The authors posit that the study would have benefited from an alternative ethics pathway, which may provide additional required flexibility while upholding the rigour of the ethical review process. The increasing frequency of participatory research studies indicates that challenges experienced by the authors of this study are unlikely to be isolated. Lloyd [43] described challenges regarding information gathered in-between, before and after structured research sessions, reflecting that they relied on personal judgement of the intent to consent for research use. Similarly, Rowley [44] reflected on the ethical complexities of interacting with families and respecting their confidentiality within the context of being integrated within an organisation. While these studies were co-production in child protection and education, the ethical challenges of their reflections parallel those experienced in the telepractice study. The risks posed by inadequate ethical support in these contexts are that increased poor ethical outcomes will occur, especially in the in-between times of co-design. Therefore, an ethics pathway that involves more frequent brief liaisons with a designated ethics representative to update project progress and troubleshoot ethical considerations may better support researchers to safeguard study participants.

We believe the decision to complete a sequential workshop series with a consistent group of diverse co-designers, led by co-facilitators, was a strength of the co-design process implemented in the telepractice re-design project. The group worked together across a series of workshops, which enabled them to build solid working relationships. Pearce et al. [5], Rahman et al. [16] and Tindall et al. [13] also demonstrated a collaborative whole-team approach to co-design. By contrast, studies that involved separate workshops with different cohorts or multiple of the same workshop did not demonstrate strong collaboration between co-designers [18–20]. Nesbitt et al. [19] explicitly highlighted that they would improve their method by completing sequential workshops with a continuous cohort. Stephens et al. [45] found that small mixed groups were not sufficient to support the participation of people with disability, indicating that the choice to intentionally balance groups to meet the lived experience expert co-designer's needs may have been an impacting factor on our success.

A lack of clarity in the terminology used in co-design and community-based participatory practice was identified during the completion of this study. We found that co-design frequently meant either a collaborative design process or good participatory practices [46]. When viewing the structure of the telepractice re-design project, the overarching research approach was community-based participatory-research, and the method was co-design [9]. The delineation between the overarching approach and methods clarifies the misappropriation of the term co-design with the intent of meaning public participation [46] rather than the joint process of creative thinking and doing to design an output [11]. The use of the two-level structure appears more prominent in the United Kingdom, whereas Fox et al. [47] systematic review assessing public or patient participants identified that 60% of studies originated from the United Kingdom, compared to the next highest 16% for Canada or 4% from Australia and the United States. To improve clarity and reduce confusion about the terminology used, the authors advocate for greater awareness and implementation of the delineation between the concepts of a community-based-participatory-research/patient or public involvement approach versus the co-design method.

An example of co-design being used where alternate terms such as community-based participatory processes (or research) may be more relevant was the most recent amendment to the act governing the NDIS under which this project resided [48]. The term co-design could be interpreted as an intent to collaborate with people with disability for equitable involvement in all aspects of the NDIS [48]. It is proposed that the differentiation of these terms would assist in clarifying the intent of the study and dissuade inaccurate expectations of community involvement or design processes.

Implementing community-based participatory research has demonstrated the potential to create an impact that expands further than the original aim of the study. The skills learned by co-designers, the learning of the research team in collaboration with people with disability, the engagement and skill-building of a peer researcher with lived experience, the organisations who engaged in the co-design process and the academic and lay people who engaged with research outputs, all carry a piece of the impact of the co-design process. Rahman et al. [16] contend that co-design processes positively impact communities. In the context of this study, the peer researcher was included in the National Disability Insurance Agency's quarterly report as an example of strength-based employment opportunities, which significantly positively impacted his career prospects [49]. This project provided skills for people with disability that they value and improved the clinical practice of clinician co-designers, which echoes the conclusions of Ramos et al. [15], who described that participants felt valued and experienced improved self-esteem. There is additional intent from the authors to positively impact disability providers and academia, to advocate for greater collaboration, and to provide open-access publications to provide a stronger evidence base for co-design in clinical practice and service delivery.

Strengths and limitations

The study provides reflective evidence to support the challenges and benefits experienced during the implementation of the study. However, a limitation in the project's design was the exclusion of outcome measures to assess the impact of process design choices directly. Stephens et al. [45] completed targeted outcome measures correlating to accessibility adaptations in co-design and conceded that the variability of findings and individual needs reduced the usefulness of these measures.

The reduction of project scope enabled the completion of the study within the limitations of budgeting and timeline restrictions. Although the scope of the project had some flexibility, there were limitations to how far this could be extended as resources were not infinite, and staffing changes meant that organisational priorities changed. Including implementation and evaluation would have improved the study's rigour. However, Rocky Bay now has the opportunity to implement internally without potential research delays and restrictions.

The blended and flexible approach to the co-design process was a strength of the study as it met the co-designers needs and maximised the project's potential inclusivity. This strength has the potential to positively impact other studies that can modify some of the process design choices to suit their context and increase inclusivity [11]. It is believed that the messiness of co-design is important in meeting the needs and context of each individual study; therefore, no two co-design processes should look the same.

The authors concede that the inclusion of a cohort of people with disability and clinical staff does not represent the entirety of their communities, and their proposed changes may cause some parts of the disability community to experience increased barriers [50]. It is important to note that while the co-designers who participated in this project provided initial design developments, future opportunities remain to iterate the proposed telepractice service and continue to advocate for equitable access for all.

Recommendations for future studies

Recommendations from this study fall into two categories: recommendations for those intending to utilise the described methods and recommendations for future avenues of research inquiry. For those intending to implement the methods, the primary recommendations are to build ample time buffers into the project schedule, implement key role succession planning and set remuneration agreements at the outset, and work together as partners with the mindset that all contributors are creative [51] with important expertise and invaluable insights if supported appropriately.

Regarding avenues for future inquiry, we recommend investigating a more dynamic and flexible ethics process that may utilise more frequent short consultations to respond to ethical considerations during the emergent co-design and participatory research.

Conclusion

In the authors' opinion, supported by co-designers experiences, co-design is a useful and outcome-generating methodology that can proactively enable the inclusion of people with disability and service providers in a community-based participatory research approach. The process is both time and resource-intensive; however, in our opinion, the investment is justified through the delivery of direct research benefits and indirect wider community benefits. We advocate for using community-based participatory-research/processes paired with co-design to generate creative thinking within service design processes. Through co-design processes, we recommend collaborating with a single diverse group of co-designers who have the time and space to build trusting working relationships that enable outputs representative of the group consensus.

Abbreviations

AUD	Australian Dollar
GRIPP2	Guidance for Reporting Involvement of Patients and the Public 2 Checklist
HREC	Human Research Ethics Committee
PhD	Doctor of Philosophy
PPI	Patient and Public Involvement
MS Teams	Microsoft Teams
NDIS	National Disability Insurance Scheme

Supplementary Information

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Supplementary Material 1: Appendix 1–3

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Author contributions

CB and MW liaised with the steering committee and conceived the study and structure. SR, DH and RN guided the protocol development and ethics approval. KAM provided methodological support to the project and subject matter expertise. CB and WJS completed participant recruitment, facilitation of workshops and data collection. KAM and CB ideated the format and content of the article. CB completed data analysis and wrote the first draft of the manuscript. All authors reviewed and edited the manuscript and approved of the final version of the manuscript.

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Data availability

The dataset supporting the conclusions of this article is predominantly included within the article (and its additional files). However, due to the small number of co-designers reflecting upon the research, despite deidentification, there is a reasonable assumption of identification; therefore, the reflection activity response supporting data is not available.

Declarations

Ethical approval and consent

The study was approved by the Curtin University Human Research Ethics Committee (ID# HRE2021-0731), and all participants provided written informed consent before engaging in any research activity.

Consent for publication

Not applicable.

Competing interests

Cloe Benz, Richard Norman, Delia Hendrie & Suzanne Robinson do not have any competing interests to declare. Will Scott-Jeffs, Matthew Locantro and Mai Welsh, for all or part of the study period were employed by Rocky Bay a Not-For-Profit Disability Service provider who function as the industry partner for the project. K.A. McKercher is the author of a co-design method book referenced in the article. McKercher also runs a business that helps people co-design.

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Publisher's Note

7.12 Chapter Summary

This chapter provided an in-depth methodological case study of the use of co-design to support community-based participatory-research initiatives, utilising the telepractice research project as an exemplar of co-design implementation within the disability community. The article provides a complimentary and reflective accompaniment to methodology and methods outlined in chapter three of the thesis.

The next chapter will provide a more in-depth exploration into the creation of the journey map of current experiences of telepractice for customers of Rocky Bay in collaboration with the co-designers. This chapter provides a visual summary of the telepractice experience for customers, with accompanying analysis of interview excerpts which informed the journey map.

CHAPTER 8: A JOURNEY MAP OF THE CURRENT CUSTOMER TELEPRACTICE EXPERIENCE

This current chapter provides a more in-depth exploration into the creation of the customer experiences of current telepractice journey map in collaboration with the co-designers. This chapter provides a visual summary of the telepractice experience for customers, with accompanying analysis of interview excerpts which informed the journey map. The one-page infographic summary is included following the publication, which was used to aid in dissemination of the findings.

8.1 Preface

The article included below has been published as an open access journal article in Health Expectations and appears in this chapter from the next page, in the original format.

> **Reference:** Benz C, Scott-Jeffs W, Revitt J, Brabon C, Fermanis C, Hawkes M, et al. Co-designing a telepractice journey map with disability customers and clinicians: Partnering with users to understand challenges from their perspective. Health Expectations. 2023;n/a(n/a) doi:https://doi.org/10.1111/hex.13919

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ORIGINAL ARTICLE

WILEY

Co-designing a telepractice journey map with disability customers and clinicians: Partnering with users to understand challenges from their perspective

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Abstract

Introduction: Telepractice has the potential to align with the directive to reduce inequalities by United Nations Sustainable Development Goal 10. Telepractice additionally addresses a national digital health strategic plan for accessible digitally enabled models of care. To plan improvements, it is essential to understand the experience of telepractice for people with disability, which may be achieved through an approach such as journey mapping. The current article provides both a disability-specific case study and a methodological guide for the inclusion of customers and clinicians in the meaningful redevelopment of services. The Perth, Australia-based case study aimed to gain insights into the experience of telepractice for people with disability. The methodological aim describes using co-design to produce a journey map in collaboration with customers and clinicians, for potential replication in a wide range of health and social care contexts.

Method: Interview transcripts gathered from a cohort of customer participants ($n = 17$) were used to inform the journey map. A group of customers ($n = 5$) and clinicians plus one manager ($n = 5$) distributed the findings onto a customer experience journey map during a co-design workshop. The journey map describes the emotional experience and actions taken, along five phases of a timeline through telepractice service interactions: (1) before, (2) selecting telepractice, (3) telepractice preparation, (4) during telepractice sessions and (5) after.

Results: A journey map visualisation of customer experiences was produced that identified strengths of telepractice service delivery (flexibility) while noting challenges (with technology) as opportunities for improvement. The consensus of participants was the desire to have access to telepractice currently and in the future, in addition to in-person delivery.

Conclusion: These findings are valuable in the context of advocating for the incorporation of customers and clinicians through co-design workshops in the content analysis and creation of a journey map that is representative of the lived experience of accessing telepractice services.

Patient or Public Contribution: The paper forms part of a larger co-design process that included customer participants throughout the design and planning of the project, inclusion of a peer researcher and the co-designers in the workshops, journey map and this article production.

KEYWORDS

co-design, disability, journey map, patient and public involvement, peer researcher, telepractice

1 | INTRODUCTION

Telepractice and other services, which have been rapidly implemented, upscaled or trialled, require review and potential redesign to become high-quality sustainable long-term services. As these service models progress from temporary responses to coronavirus disease 2019 (COVID-19) to sustained services, they have the potential to align with the directive to reduce inequalities by United Nations Sustainable Development Goal 10.[1] The progress of telepractice additionally works towards addressing a national digital health strategic plan for accessible digitally enabled models of care.[2] Telepractice is defined here as services provided by a clinician to a recipient via synchronous or asynchronous digital communication means.[3] This study focuses on the experience of people with a disability accessing clinical services delivered through synchronous telepractice via a video call.

Journey mapping is a suitable approach to use for understanding the experience of people with disability utilising telepractice as it provides a 'visual presentation of the complete route a patient follows during all stages of a care trajectory and the patient's emotional experience through this journey'[4,p.1071]. Emotional experiences are important, as they may have a significant impact on repeat use or recommendations for telepractice to user networks. Journey mapping provides the opportunity to identify touchpoints or potential pain points within their experience to highlight areas for improved service delivery.[5]

The current study was based at a disability support service provider in Perth, Australia, providing services predominantly funded by the National Disability Insurance Scheme (NDIS). The NDIS is an Australian federal government-funded programme, providing personalised funding plans to people with significant or permanent disability to access support via a goal-based model.[6] A myriad of services that are available to access under the NDIS include allied health (e.g., physiotherapy, occupational therapy, speech pathology, dietetics), behaviour support and nursing care.[7] NDIS participants are able to utilise their plan within a fixed period (1–3 years) to receive services within categories, with each service (e.g., occupational therapy) allocated a maximum charging rate.[8]

Significant challenges of telepractice use at a population level for NDIS participants were published by Lawford et al.,[9] which indicated that problems and barriers exist at scale. These findings, however, provided insufficient details to understand service-level specifics. An in-depth understanding is crucial in the pursuit of targeted telepractice innovation. Individuals who access disability services are a vast and heterogeneous group. Also, while small-scale in-depth inquiries could provide a level of understanding of barriers and challenges, it would be difficult to assume generalisation to the international disability community.[10] A solution may be providing a method for replication where small-scale in-depth inquiries could be conducted within many local community contexts. Therefore, the purpose of publishing this article is twofold: to provide in-depth findings to those in a similar context and to provide a methodological guide for a broader audience who may, with adaptations, replicate the process in a wide range of health and social care service improvement contexts.

The recipient and provider experiences of navigating telepractice allied health therapy services fundamentally differ. Therefore, an evaluation must appraise both customer and provider perspectives of potential improvements.[11] Co-design is a methodology for providing insights and guiding service design or redesign in a nonhierarchical, power-sharing, creative thinking and doing process.[12] It values forming relationships and building the capacity of community participants.[13]

Increasingly, research studies in health and disability have selected the co-design methodology in advocating for more community-based participatory research (CBPR) in its varying formats.[14–17] A scoping review of journey mapping use in health care published by Joseph et al.[18] advocated for shared decision-making, including designing in unison and constructing the journey map in partnership with service users. The Davies et al.[5] scoping review reported that 76.5% (*n* = 62) of included studies were published since 2015, indicating increasing awareness of journey mapping strategy use to assist in centring user experience in service improvement.

The Davies et al.[5] scoping review established eight distinct reasons justifying the use of journey mapping, the most frequent being to inform service redesign or improvement. The majority of the 26 studies additionally advocated for the inclusion of insights from people with lived experience and service providers in the journey mapping process.[5]

Correspondingly, this study aimed to gain insights into the current experience of telepractice-delivered clinical services for people with a disability and their families with a secondary aim to explore whether empowering people with lived experience and clinicians as co-designers to analyse data and to compile a journey map would provide useful insights to guide a telepractice service redesign.

2 | METHODS

2.1 | Study design

The study was based on a three-step co-design process (Figure 1) including interviews with customers and staff, followed by focus groups to review interview findings, and ending with co-design workshops with a smaller group of customers and staff (referred to as co-designers). This study describes the development of a journey map based on the customer interview data and focus group discussions produced by co-designers in the second of a five-workshop series (step 3), with support from the workshop facilitators (C. Benz/W. S. J.). A total of 10 co-designers who completed the series of five fortnightly workshops were recruited from the customers, clinicians and nonclinical staff interviewed in step one, who also completed a corresponding focus group. The interview participants (step 1) were offered the opportunity to express their interest to participate in the co-design workshop series (step 3). Of those who expressed interest, selection of the co-designers was predicated on the intent to have, at a minimum, equal number of customers to staff or preferably more customers than staff.

The project is approached in a CBPR[19] format that was ethically governed by a set of principles prioritising lived-experience participants as advocated for by Page[20] and outlined by McKercher.[13] People with a disability, carers and staff were engaged equitably throughout the project from conception to conclusion. A project steering committee contributed to study design, defining objectives, identifying participant cohorts and the recruitment and inclusion processes. A CBPR approach and co-design methodology were selected to collaborate equitably with people with a disability[21], and a peer researcher (W. S. J.) with lived experience of disability was integral to all steps of the study. It was intentional to share power over decision-making and project control with a member of the disability community; his involvement included, but was not limited to, the ethics application, creation of interview prompts and the journey mapping process.

Person-first language conventions are utilised in deference to the preference of experts with lived experience who contributed to this research, to respect and affirm their identity. However, we respect the right of participants to choose and the potential for the alternate preference of identity-first language by members of the disability community.[22]

2.2 | Ethical approval and data reporting

Full ethical approval was received from the Curtin Human Research Ethics Committee (HRE2021-0731). All participants provided written

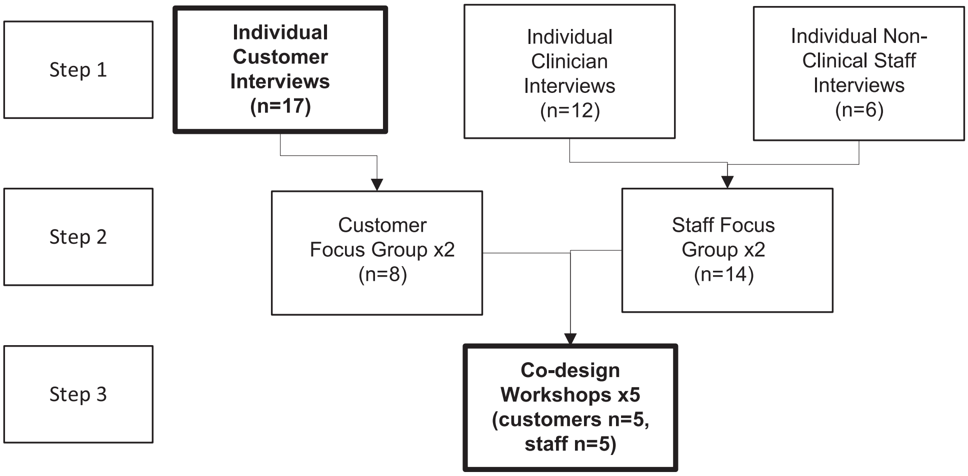


FIGURE 1 Flowchart of the project structure (items related to the current study are in bold).

informed consent before the interview, and workshop attendees additionally provided specific signed consent before attendance. The reporting of the project has been completed under the guide of the Standards for Reporting Qualitative Results.[23]

2.3 | Sampling and setting

A not-for-profit disability support service provider was the study setting, with inclusion criteria being customers currently accessing clinical services from the organisation and/or family members and carers (inclusive of support and education staff). Customers were purposely sampled for maximum variation in reference to disability type, age and area where services were accessed (across metropolitan, suburban and rural). Recruitment strategies included an emailed invitation, and a phone call from the peer researcher to confirm receipt of the invitation. Additionally, clinical staff who participated in interviews were asked to circulate study information and researcher contact details. Participants volunteered by contacting the research team either in person, by phone or by email and completing the consent process. They consented to either video, audio or written interview data collection and the option of a support person being present. Identification numbers were allocated for analysis and quotations, with all names and potentially identifying information replaced or omitted to safeguard anonymity.

2.4 | Participant characteristics

All eligible customers (as of July 2022) from the study site database received an email invitation providing the opportunity to participate ($n = 2480$). A total of 19 participants consented to an interview and 17 were completed within the timeframe of recruitment from a maximum of 20. Twenty was set as a cutoff to ensure suitable numbers for subsequent focus groups (maximum 10) and workshop sessions.[24] One participant withdrew before the interview due to health concerns and a second withdrew postinterview, with their data removed as requested, due to participant consent being withdrawn by a guardian. Participant characteristics are outlined in Table 1 and included five males and 12 females, ranging in age from 14 to 64 years, with all disclosing that English was spoken at home. All answers were optional, and participants could choose whether to disclose.

2.5 | Data collection

In step one of the co-design process, semistructured interviews were conducted by the Peer Researcher (W. S. J.) with all customer participants supported by the embedded researcher (C. Benz), who is a registered physiotherapist, but had not worked in disability previously. Interviewees could choose an in-person or online (via Microsoft Teams) interview at the most convenient time slot for them from the available days of the peer researcher.

Interviews were completed between July and October 2022, with participant responses related to any previous experiences of telepractice not limited to a specific timeframe. However, most participants had only experienced telepractice following the onset of the COVID-19 pandemic, placing their experiences from March 2020 onwards.

The journey map is derived from the customer interview data set ($n = 17$), with both customer ($n = 5$) and staff ($n = 5$) co-designers participating in the analysis of data. Focus group content was not explicitly used in the completion of the journey map; however, as each co-designer completed an interview and focus group session, they may have implicitly used knowledge gained through those sessions.

2.6 | Data analysis

The interview transcripts were reviewed by the first author (C. Benz) with excerpts placed on a draft timeline of the customer telepractice journey. The timeline was broken down into five phases, and all relevant interview excerpts were allocated as *doing* or *feeling* quotes. During the second co-design workshop (2/5), the session facilitator (C. Benz) outlined the purpose, described the process of interpreting interview excerpts into components of the journey map and demonstrated completing the first phase (before) on the timeline. The co-designers were divided into four groups and allocated a journey map phase and corresponding interview excerpts. Each group interpreted the interview comments into two categories: first, *doing*, which included strengths of telepractice and the challenges, and second, the *feeling* portrayed by the excerpts, which included a word summary and ranking out of five from thumbs down (1) to thumbs up (5). Workshop two concluded with each group feeding back and discussing their findings with the wider group before returning their responses to the facilitators. The responses were subsequently compiled into the journey map template and circulated to the group as a draft for further feedback, and all co-designers confirmed acceptance before finalisation.

2.7 | Journey map visualisation structure

An experience journey map of multiple customers accessing a variety of services delivered by telepractice through one organisational provider[18] was the selected format. Alternate options such as customer journey mapping of a singular customer, a service blueprint or spatial map were deemed either too specific or broad for the intended purpose.[18] The structure of the journey map visualisation was a flowchart with a chronological timeline that was subjected to qualitative data analysis. The care path for customers included a descriptive and visual representation of emotional experiences complementing more process-driven actions,[4] as emotional experiences were highlighted as a key element of the patient experience identified by the Joseph et al.[18] scoping review.

TABLE 1 Participant characteristics.

Gender	Birth year	Ethnicity	Where do you live?	Education level	Services accessed (type)	Disclosed diagnoses or impairment	Technology devices owned	Internet connection self-rating	Participated in Telepractice
Male	1959	Caucasian	Suburban	University	Dietician, physio, OT	Other neurological, other physical, visual	Tablet	Excellent	Yes, regularly
Male	1976	Other	City	University	Physio, OT	Intellectual disability, neurological	Laptop, smart phone	Good	Yes, not many
Male	1994	Caucasian	Suburban	Tertiary certificate	Physio, OT, speech	Physical	Laptop, computer, tablet, phone	Poor	Yes, regularly
Female	2009	Asian	Suburban	High school	Physio, OT, speech	Physical	Laptop, smart phone	Good	Yes, regularly
Female	1999	Caucasian	Suburban	Tertiary certificate	Physio, OT	Neurological	Laptop, smart phone	Excellent	Yes, regularly
Female	1992	Caucasian	Suburban	Less than high school	OT, behaviour support	Autism	Smart phone	Good	No
Female	1979	Caucasian	Suburban	University	Physio, OT	Neuromuscular	Laptop, smart phone	Good	Yes, regularly
Female	1988	Caucasian	Suburban	Tertiary certificate	Physio, OT, speech	Autism, developmental delay	Laptop, computer, tablet, smart phone	Good	Yes, regularly
Male	-	Caucasian	Suburban	Tertiary certificate	Physio, OT	Brain/spinal injury	Laptop, computer, tablet, smart phone	Good	Yes, not many
Female	-	Middle Eastern	City	University	Physio, OT, speech, behaviour support	Autism	Tablet	Good	Yes, not many
Female	1979	Caucasian	City	University	Physio, OT, nurse	Physical	Computer, smart phone	Good	Yes, not many
Male	-	Caucasian	Suburban	Tertiary certificate	Physio, OT	Brain/spinal injury	Laptop, tablet, smart phone	Good	Yes, not many
Female	1977	Aboriginal	Suburban	Tertiary certificate	Physio, OT	Intellectual disability, neurological, hearing loss	Tablet, smart phone	Good	No
Female	1981	Caucasian	Suburban	Tertiary certificate	Physio, OT, speech	Cerebral palsy, brain/spinal injury	Laptop, smart phone	Good	Yes, not many
Female	-	Caucasian	Suburban	Tertiary certificate	Physio, OT, speech, psychology	Autism, anxiety, ADHD	Computer, smart phone	Good	No
Female	1986	Caucasian	Rural	High school	Physio, OT	Cerebral palsy	Laptop, tablet, smart phone	Poor	Yes, regularly
Female	-	Caucasian	Suburban	University	N/A[a]	N/A[a]	Tablet, laptop, smart phone	Good	N/A[a]

Abbreviations: ADHD, attention deficit hyperactive disorder; OT, occupational therapy; physio, physiotherapy; speech, speech pathology.

[a] Teacher of a student who completed telepractice sessions at school in the classroom.

3 | RESULTS

3.1 | Journey map

The co-designed telepractice journey map (Figure 2) described five phases of telepractice therapy services, which include (1) before, (2) selecting telepractice, (3) telepractice preparation, (4) during telepractice sessions and (5) after. Each phase was broken down into components of that experience, where feelings experienced by a customer, the strengths of doing telepractice and its challenges are described. Each phase is described in more detail with supporting quotations below.

3.1.1 | Phase 1: Before

The emotional state of participants before encountering telepractice was described predominantly in negative terms such as stressed, confused and sceptical of the NDIS; these factors presumedly placed participants in a less open mindset.

> I have many services with many different people, and it gets confusing (SU002)

A lack of positive emotions associated with the scheme that provides funding for services may have had the potential to impact uptake or receptiveness to information regarding telepractice.

Strengths and challenges identified in phase one (before) were linked to awareness of telepractice as a delivery option, with positives identified for those who were informed of its introduction and challenges seen in reaching all customers. Five participants identified the COVID-19 pandemic as the catalyst for their awareness of telepractice, with two other participants discussing emails received offering telepractice (in response to the COVID-19 pandemic) as their source of information. However, one participant disclosed a desire to access services via telepractice but a lack of opportunity to do so:

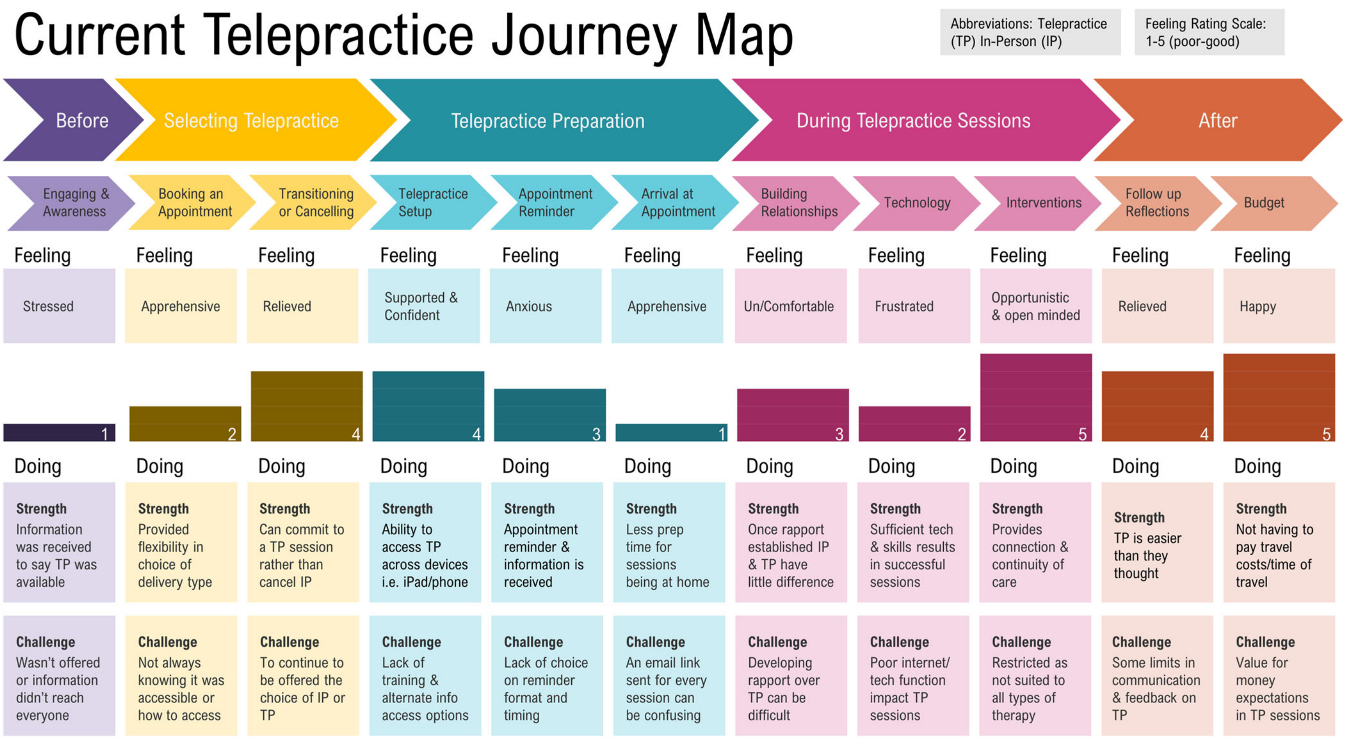
> Never really had telepractice offered, but if it was offered, we would use it. (SU10)

Co-designers identified the challenge of providing appropriate communication and ensuring that all potential customers were informed as a priority opportunity for future improvement.

3.1.2 | Phase 2: Selecting telepractice

The feeling used to summarise the selection of telepractice delivery for therapy and booking a session was apprehension predominantly linked to limitations in choice caused by the COVID-19 pandemic. There were multiple respondents with comments such as:

> It was a last resort option at the time … because of the lockdown. (SU13)



Current Telepractice Journey Map

Abbreviations: Telepractice (TP) In-Person (IP)

Feeling Rating Scale: 1-5 (poor-good)

		Feeling		Doing: Strength	Doing: Challenge
Before	Engaging & Awareness	Stressed	1	Information was received to say TP was available	Wasn't offered or information didn't reach everyone
Selecting Telepractice	Booking an Appointment	Apprehensive	2	Provided flexibility in choice of delivery type	Not always knowing it was accessible or how to access
	Transitioning or Cancelling	Relieved	4	Can commit to a TP session rather than cancel IP	To continue to be offered the choice of IP or TP
Telepractice Preparation	Telepractice Setup	Supported & Confident	4	Ability to access TP across devices i.e. iPad/phone	Lack of training & alternate info access options
	Appointment Reminder	Anxious	3	Appointment reminder & information is received	Lack of choice on reminder format and timing
	Arrival at Appointment	Apprehensive	1	Less prep time for sessions being at home	An email link sent for every session can be confusing
During Telepractice Sessions	Building Relationships	Un/Comfortable	3	Once rapport established IP & TP have little difference	Developing rapport over TP can be difficult
	Technology	Frustrated	2	Sufficient tech & skills results in successful sessions	Poor internet/ tech function impact TP sessions
	Interventions	Opportunistic & open minded	5	Provides connection & continuity of care	Restricted as not suited to all types of therapy
After	Follow up Reflections	Relieved	4	TP is easier than they thought	Some limits in communication & feedback on TP
	Budget	Happy	5	Not having to pay travel costs/time of travel	Value for money expectations in TP sessions

FIGURE 2 Journey map visualisation.

Trialling any new aspect of therapy, be it delivery mode or type of intervention, has the potential to cause apprehension if not supported sufficiently. Co-designers and participant interviews highlighted challenges in providing sufficient information and accessibility options to support customers to feel comfortable trialling telepractice. However, telepractice provided the flexibility to transition between delivery types that decreased lost therapy time to those with mobility challenges, full-time working parents and families who wished to holiday.

> Lots of families travel these days and you don't want to be restricted because you've got a child that requires therapy, I know we've been hesitant to travel at times. If it (telepractice) became a more viable option … I think it's fantastic. (SU18)

In reference to transitioning to telepractice or cancelling appointments, relief was felt by participants as the option of telepractice was preferrable over cancelling in-person sessions. Challenges remain regarding the best context to offer choices between in-person and telepractice, and how to continue to offer options without overburdening the customer.

> Even without the pandemic if telepractice was offered I would have chosen it in lots of sessions. (SU12)

The timing and frequency of providing the choice of delivery type were flagged by co-designers as challenges for providing ideal access to telepractice.

3.1.3 | Phase 3: Telepractice preparation

The preparation for a telepractice session was broken down into three subphases, including set-up, appointment reminders and arriving (virtually) at an appointment. Across the subphases, the emotional response from participants peaked in positivity during telepractice set-up. Feelings were characterised as supported and confident, and progressively declining to negative due to anxiety caused by lack of reminders and apprehension before commencing a session. These feelings of anxiety and apprehension were particularly exacerbated if the provider was running late for a session:

> and the person in control of the appointment is running like 15-30 min late it starts to build up and you wonder what's going on (SU03)

During the telepractice set-up subphase, participants valued access across a variety of devices, but flagged the need for more comprehensive training and information across options. Many participants acknowledged a level of prior understanding of videoconferencing platforms through employment and other services. However, barriers to access exist such as younger people not having email addresses, phone stands and accessories for participants with limited dexterity and portable devices to capture nimble infants moving around.

> My son already has a laptop … I helped him (with setup), because he doesn't have an email to open a link. (SU13)

Appointment reminders were valued by participants who received them; however, this process was inconsistent. Within the group, the variety of preferences for reminder format and timing was viewed by the co-designers as a key challenge:

> Maybe a text message might be a bit easier, because if I get a text message it comes through straight away but with an email, I don't always get a notification. (SU08)

Telepractice appointment arrival occurs independently, unlike when attending at a therapy session in-person and interactions occur with reception staff, or if the clinician is travelling to a customer home. The responsibility to find appropriate links and log in was a challenge; co-designers highlighted that many people with disability access multiple services within and across organisations and links can be a real barrier and source of anxiety.

> I've probably got 100 links sitting in my inbox and I don't even know which ones to click sometimes. (SU05)

The real strength of telepractice and point of difference compared to in-person sessions was decreased travel, petrol costs and time commitments of participants. This was additionally equated to decreased impacts on both school and work attendance.

> Definitely takes a lot of stress off me having to drive as well. (SU11)

A parent similarly highlighted that their adolescent son being able to access therapy via telepractice after school independently was convenient, with both parents working full time.

3.1.4 | Phase 4: During telepractice sessions

The three different subphases of *During Telepractice Sessions* reflect important aspects for achieving success, including building relationships, technology and the interventions to be completed.

Co-designers linked feelings of comfort to the process of building relationships and identified that participants felt uncomfortable in the initial rapport-building period if completed via telepractice. However, once the relationship had formed and comfort levels increased, telepractice was not significantly different to in-person interactions.

This was reflected in the identified strengths and challenges of building relationships via telepractice, with one participant describing strategies to increase tolerance for interacting on video and another suggesting that these skills were beneficial and transferrable.

> The therapist and I came up with a plan to try and get him onto (video) chats with his cousins, his Aunt V and his Nana … and he thoroughly enjoys it now. (SU11)

Where technology initially created the feeling of frustration linked to multiple different factors (e.g., Wi-Fi outages), it became an opportunity to learn new skills for telepractice sessions.

> They did have a lot of trouble with sound in the beginning, they couldn't get the sound to work for quite a few sessions, which made it really difficult for them. (SU19)

Participant comments regarding technology did indicate that they felt that their confidence in using the technology grew, and they presently felt quite happy using telepractice:

> Took us a little while to get our sea-legs, but once we worked out the routine it has just been cruisy. (SU06)

Multiple carer participants acknowledged that the young person with a disability they were supporting had superior technological skills, and they were often learning rather than teaching. When technology functions appropriately and skills of users match the requirements of the session, co-designers felt that sessions were successful. However, if either the technology or the skill set of users was insufficient, it caused significant challenges that impacted therapy sessions.

In terms of providing and receiving a diverse array of therapy interventions, co-designers identified that participants felt open-minded and opportunistic to trial telepractice. The COVID-19 pandemic limiting viable alternatives may have been the source; however, this open-mindedness enabled a baseline understanding of telepractice and its capabilities.

Telepractice enabling continuity of care during periods of stress or when in-person sessions are not viable was a relief to many participants, with co-designers acknowledging that COVID-19 was unlikely to be the only cause for disruption of in-person therapy delivery.

> Having the opportunity to still be able to connect with therapists is amazing and not having to change, that's a big thing just continuing ongoing care. (SU18)

Unfortunately, despite telepractice offering a good alternative, challenges remain for the practicability of more physical interventions such as occupational therapy and physiotherapy being delivered via telepractice. However, even though exclusive use of telepractice was not desired, participants did describe enabling strategies such as alternating delivery modes, support person for hands-on activities and utilising props to model interventions to limit the challenges faced. One participant, after acknowledging the challenges of physical interventions, described thinking that in-person sessions with no physical component felt like a waste of travel time:

> (when) there's not a physical component to it and with a lot of speech there's not a physical component, a lot of the time it feels even more of a waste going in when I could have just done it by telehealth. (SU05)

3.1.5 | Phase 5: After

Upon reflection posttelepractice, participants described a feeling of relief and appreciation. They felt decreased anxiety and stress knowing that telepractice was an option and wished that it would continue to be in the future:

> I would love to see more of it because I think it's an integral part (of life) these days. (SU002)

Participants described a sense of surprise that telepractice was easier than anticipated, with many commenting that it is 'not as scary as it seems' [SU11 and SU12), they were 'surprised how well it worked' (SU19, SU13 and SU03) and that the advice they would give to others was to 'go for it' (SU02, SU03, SU06, SU13 and SU14).

Upon reflection, one challenge of increasing independence through telepractice for young people was decreased communication avenues between clinicians and the family unit:

> I haven't really spoken to the OT since he started telepractice, she communicates mostly through the school but I'd prefer more direct communication and feedback. (SU19)

The final component of the telepractice journey map was on budgetary considerations, with the co-designers deeming that participants felt happy with the impact of telepractice. Decreased travel from telepractice-delivered services was a predominant theme, with transport costs considered to be a burden:

> It's cheaper, I don't have to pay someone to travel here to my house and that's one thing I really don't like … I'd have to get someone to drive me to an appointment so that costs more as well. (SU14)

However, there were some concerns regarding value for money for specific therapy disciplines and the transferability of interventions to telepractice. In the context of funding for therapy that was provided by the NDIS scheme, this was not viewed as significant;

however, one participant acknowledged that it would be more of an issue in a fee-for-service set-up:

> If it was out of pocket, I would probably never do OT or physio telehealth. But I'd happily spend my full money on speech telehealth. (SU05)

The overall flow of the journey map highlights some significant areas of strength for telepractice in the context of disability-specific allied health therapy delivery and similarly identifies areas of potential improvement and current challenges.

4 | DISCUSSION

Customer participants identified strengths of telepractice service delivery in the findings, while noting challenges as opportunities for improvement. The consensus of participants was the desire to have access to telepractice currently and in the future, in addition to in-person delivery. The emotional experience of using telepractice fluctuated throughout the customer journey, with emotions generally more positive towards the end, compared to the outset.

The flexibility of telepractice was an identified strength, which was viewed as optimal when adjunct to in-person services through a hybrid model, rather than as an exclusive replacement. Many participants, through this study (Phase 4: During Telepractice Sessions) and others, have identified building rapport with new providers via telepractice as difficult and preferring in-person meetings before potentially transitioning to a hybrid model.[25,26]

The need for support with technology was a challenge of telepractice described in Phase 3 (preparing for the appointment) and similarly identified in a study by Lawford et al.,[9] in which only half of the respondents found technology easy to use and one-fifth found it difficult. This difficulty corresponded with the most negatively rated emotional response (apprehensive, 1/5) for customers once they had commenced interacting with telepractice, which is indicative of increased support needs. The variety of challenges identified by the co-designers in each phase reiterated the need for improvement, with Phase 5: After emphasising a desire for ongoing use.

The technological learning curve of accessing services was noted as a challenge initially for customers and potential cause for negative emotion during the preparation and completion of telepractice sessions (Phases 3 and 4). This was not unexpected considering that adults with disabilities have been shown to access internet services and use internet-accessible devices at lower rates than adults without disabilities.[27] Technological advancements have the potential to resolve challenges and limitations in therapy access, while simultaneously exacerbating knowledge and skill gaps that prevent people with a disability accessing services.[9]

Opportunities for accessing knowledge and supported upskilling were focuses for both interview participants and co-designers throughout the entire journey map. A lack of technology-specific format and adult educational pathways may be a barrier, with targeted and accessible learning pathways as a potential solution. A study by Portillo-Aceituno et al.[26] highlighted that a lack of digital knowledge caused parents of children with a disability to feel afraid of telepractice, with the authors advocating for specific training for parents and therapists. Multiple studies have referenced the need for training for people with a disability and therapists providing services,[28] including two identified through using journey mapping processes.[29,30] The need for further learning opportunities similarly reiterates the questions of equitable access and the digital divide as an important issue in the context of innovation in disability and health care. However, importantly, while the digital divide is not a novel concept, this study provided co-designers a platform to promote the need for supported education of their community rather than relying on external research assumptions.

Successful study design implementation resulted in the production of a co-designed journey map of the current state of telepractice delivery. Meaningful, nonhierarchical partnerships between customers, clinical and management staff from an industry organisation and researchers enabled a shared decision-making approach to the construction of the journey map, reflective of the process recommended by Joseph et al.[18] The scoping review additionally noted that journey mapping, while showing promise, was an underutilised resource in the redevelopment of caring services.[18] This study proposes that in combination with co-design principles, journey mapping visualisations can advance knowledge and translate it into practice in meaningful ways for customers and providers.

4.1 | Limitations

As Lid[10] outlined following the release of the Convention on the Rights of Persons with Disabilities by the United Nations,[31] in catering for specific individuals with unique needs and context, there is the potential to increase barriers for others. Also, as engaging all perspectives is difficult, including the voices of some participants may unintentionally create changes that decrease accessibility to telepractice for others. The authors acknowledge that customer co-designers may inherently prioritise data that aligned to their lived experience and beliefs, and this highlights the point additionally made by Lid[10] of the need for clinician inclusion. The rationale for including clinicians is their broader understanding of a wider range of disability experience at a macro- and meso-level.[10] These points, combined with the described importance of lived-experience inclusion, emphasised the need for group collaboration across clinicians and customers, as was facilitated within the co-designer group of this study.

The transferability[32] of findings specific to the study context may limit direct comparison to alternate locations, contexts and times; however, opportunities exist to extrapolate the findings to guide future telepractice policy, implementation or investigations. The study publication intended to meet the dual purpose of outlining findings, but more importantly, describe a method used for others to potentially create site-specific learnings. It guides readers in avenues of inquiry rather than dictating that findings are directly transferrable to alternate locations and contexts.

4.2 | Future directions

This study provides the opportunity to create and implement a site-specific telepractice improvement plan that addresses challenges currently experienced by participants. Future plans exist within the participating provider to transfer findings into meaningful change, and improvement for the customer experience, including ongoing incorporation of the project co-designers. Study publication aimed to guide other industry and academic organisations through potential methods of co-design and journey mapping to integrate service users. The growing demand for inclusion by community groups in research and service design innovations that directly impact them creates the need for practical examples of co-designing in settings such as with the disability community.

On a wider scale, ongoing development of policy and guidelines inclusive of the disability community and other disadvantaged groups is required. They need to ensure that the technology and virtual care expansion does not continue to perpetuate long-term access and equity divides. Government initiatives for internet provision through provider partnerships that incentivise network access in rural or regional areas or subsidies for people with disability as suggested by Norman et al.[27] are a potential example. An additional alternative is inclusion of internet access in disability support payments or insurance schemes (NDIS) as the exclusion of internet services disproportionately impacts access for those who already experience disadvantage.

5 | CONCLUSION

The current study advocates for the incorporation of co-designers in the analysis of interview data and creation of a journey map that is representative of the lived experience of utilising telepractice at a disability support service provider. It advocates in support of both the Davies et al.[5] and Joseph et al.[18] scoping reviews: that customer journey mapping is a valuable tool to integrate the customer experience into service improvement and redevelopment.

The journey highlights both strengths and challenges of telepractice, with access to knowledge and supported upskilling of technology viewed as a priority throughout the entire journey. The fluctuating nature of the emotional experience of using telepractice additionally indicates areas where support is required to maintain emotional well-being. These findings are valuable in support of the participants' desire to access a hybrid of telepractice and in-person sessions into the future and in support of customer experience integration in the planning, design and redevelopment of the services that they access.

AUTHOR CONTRIBUTIONS

Cloe Benz and Mai Welsh liaised with the steering committee to conceive the study structure. William Scott-Jeffs and Cloe Benz developed the initial draft of the interview schedule, which was revised by Mai Welsh, Suzanne Robinson, Delia Hendrie and Richard Norman. All of the above contributed to the ethical application and protocol development. Cloe Benz and William Scott-Jeffs completed the recruitment and data collection as well as the data allocation to the journey map timeline. In their role as co-designers Jerah Revitt, Chloe Brabon, Chloe Fermanis, Samantha Cooper, Catherine Keane, Mat-thew Locantro, Melanie Hawkes and Robert Dyke completed the data analysis and completion of the journey map visualisation. Cloe Benz wrote the first draft of the manuscript. All authors reviewed and edited the manuscript and approved the final version of the manuscript.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

ETHICS STATEMENT

This study was approved by the Curtin University Human Research Ethics Committee (ID# HRE2021-0731). All participants of the study provided written informed consent before participation, with the co-designers providing additional informed consent for the co-design workshops.

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8.2 Journal Article Summary Infographic

Telepractice Research Project
The Journey of using Telepractice for Rocky Bay Customers

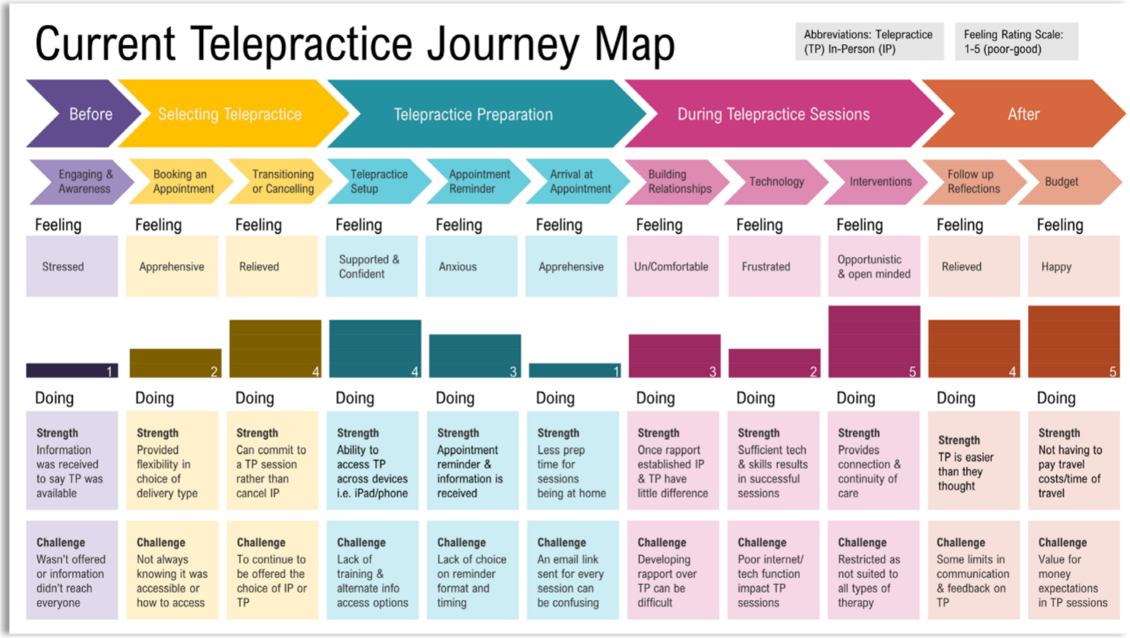
This is a **graphic summary** of an article which looked at how customers of Rocky Bay experience using telepractice for accessing clinical services. The article is part of the **Telepractice Research Project** between Rocky Bay and Curtin University and was written in collaboration with 10 co-designers included 5 customers and 5 staff from Rocky Bay.

A **Journey Map** is a visual presentation of the steps a customer follows during all stages of a care episode and the person's emotional experience through this journey.

What we did:

17 Customers & Carers	30 min Interviews	Aug - Nov 2022	10 Customer & Staff Co-designers created a Journey Map

What we found:



Current Telepractice Journey Map

Abbreviations: Telepractice (TP) In-Person (IP)

Feeling Rating Scale: 1-5 (poor-good)

Before	Selecting Telepractice		Telepractice Preparation			During Telepractice Sessions			After	
Engaging & Awareness	Booking an Appointment	Transitioning or Cancelling	Telepractice Setup	Appointment Reminder	Arrival at Appointment	Building Relationships	Technology	Interventions	Follow up Reflections	Budget
Feeling	Feeling	Feeling	Feeling	Feeling	Feeling	Feeling	Feeling	Feeling	Feeling	Feeling
Stressed	Apprehensive	Relieved	Supported & Confident	Anxious	Apprehensive	Un/Comfortable	Frustrated	Opportunistic & open minded	Relieved	Happy
1	2	4	4	3	1	3	2	5	4	5
Doing	Doing	Doing	Doing	Doing	Doing	Doing	Doing	Doing	Doing	Doing
Strength Information was received to say TP was available	**Strength** Provided flexibility in choice of delivery type	**Strength** Can commit to a TP session rather than cancel IP	**Strength** Ability to access TP across devices i.e. iPad/phone	**Strength** Appointment reminder & information is received	**Strength** Less prep time for sessions being at home	**Strength** Once rapport established IP & TP have little difference	**Strength** Sufficient tech & skills results in successful sessions	**Strength** Provides connection & continuity of care	**Strength** TP is easier than they thought	**Strength** Not having to pay travel costs/time of travel
Challenge Wasn't offered or information didn't reach everyone	**Challenge** Not always knowing it was accessible or how to access	**Challenge** To continue to be offered the choice of IP or TP	**Challenge** Lack of training & alternate info access options	**Challenge** Lack of choice on reminder format and timing	**Challenge** An email link sent for every session can be confusing	**Challenge** Developing rapport over TP can be difficult	**Challenge** Poor internet/ tech function impact TP sessions	**Challenge** Restricted as not suited to all types of therapy	**Challenge** Some limits in communication & feedback on TP	**Challenge** Value for money expectations in TP sessions

More information is available in the full article, to find the article online and in PDF follow the QR code or type the DOI link (below) into your internet browser, if you have any questions feel free to email cloe.benz@rockybay.org.au.

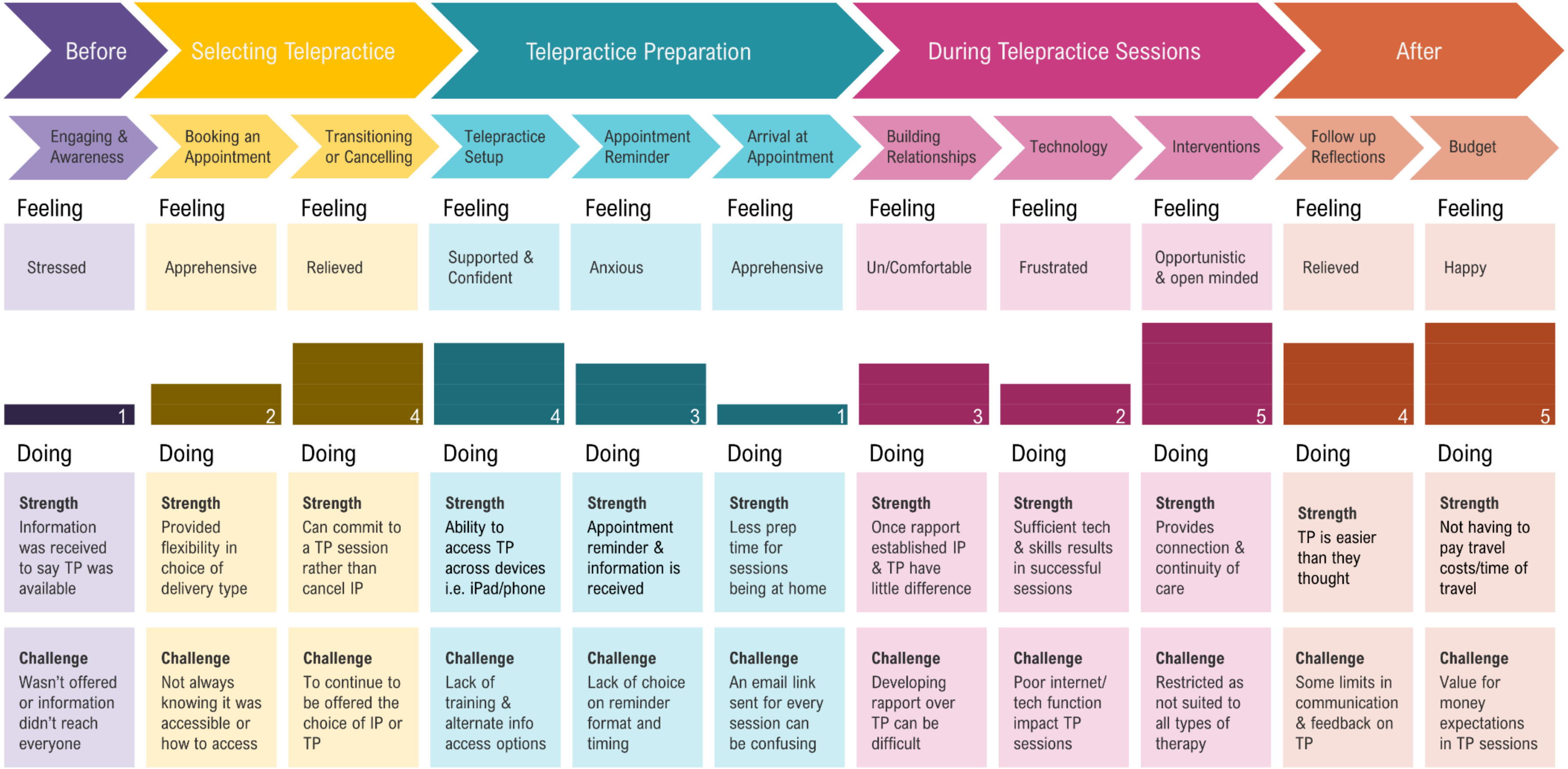
Benz C, Scott-Jeffs W, Revitt J, Brabon C, Fermanis C, Hawkes M, et al. Co-designing a telepractice journey map with disability customers and clinicians: Partnering with users to understand challenges from their perspective. Health Expectations. 2023;n/a(n/a) doi: https://doi.org/10.1111/hex.13919

Curtin University Human Research Ethics Committee Approved (HRE2021-0731).

Current Telepractice Journey Map

Abbreviations: Telepractice (TP) In-Person (IP)

Feeling Rating Scale: 1-5 (poor-good)



Before	Selecting Telepractice		Telepractice Preparation			During Telepractice Sessions			After	
Engaging & Awareness	Booking an Appointment	Transitioning or Cancelling	Telepractice Setup	Appointment Reminder	Arrival at Appointment	Building Relationships	Technology	Interventions	Follow up Reflections	Budget
Feeling	**Feeling**	**Feeling**	**Feeling**	**Feeling**	**Feeling**	**Feeling**	**Feeling**	**Feeling**	**Feeling**	**Feeling**
Stressed	Apprehensive	Relieved	Supported & Confident	Anxious	Apprehensive	Un/Comfortable	Frustrated	Opportunistic & open minded	Relieved	Happy
1	2	4	4	3	1	3	2	5	4	5
Doing	**Doing**	**Doing**	**Doing**	**Doing**	**Doing**	**Doing**	**Doing**	**Doing**	**Doing**	**Doing**
Strength Information was received to say TP was available	**Strength** Provided flexibility in choice of delivery type	**Strength** Can commit to a TP session rather than cancel IP	**Strength** Ability to access TP across devices i.e. iPad/phone	**Strength** Appointment reminder & information is received	**Strength** Less prep time for sessions being at home	**Strength** Once rapport established IP & TP have little difference	**Strength** Sufficient tech & skills results in successful sessions	**Strength** Provides connection & continuity of care	**Strength** TP is easier than they thought	**Strength** Not having to pay travel costs/time of travel
Challenge Wasn't offered or information didn't reach everyone	**Challenge** Not always knowing it was accessible or how to access	**Challenge** To continue to be offered the choice of IP or TP	**Challenge** Lack of training & alternate info access options	**Challenge** Lack of choice on reminder format and timing	**Challenge** An email link sent for every session can be confusing	**Challenge** Developing rapport over TP can be difficult	**Challenge** Poor internet/ tech function impact TP sessions	**Challenge** Restricted as not suited to all types of therapy	**Challenge** Some limits in communication & feedback on TP	**Challenge** Value for money expectations in TP sessions

Figure ?: Full Page Journey Map

8.3 Chapter Summary

This chapter provided an in-depth exploration into the creation of the journey map of current experiences of telepractice for customers of Rocky Bay in collaboration with the co-designers. The findings of the study identified multiple strengths and challenges faced by customers when accessing services delivered via telepractice. The desire for access to knowledge and further upskilling of technology were viewed as priorities throughout the entire journey map. The author conclusions additionally advocate for the incorporation of co-designers in the analysis of interview findings and propose that the journey map method is well suited to achieve this outcome.

The next chapter includes the final telepractice improvement and implementation proposal which was provided to the Executive and Management of Rocky Bay to summarise the findings and recommendations drawn from the research study.

CHAPTER 9: A PROPOSAL FOR TELEPRACTICE IMPROVEMENT AND IMPLEMENTATION

The contents of this chapter include the Telepractice Improvement and Implementation Proposal, as was provided to members of the Rocky Bay Executive and management from the Clinical Department. A physical copy of the booklet was printed and provided to the CEO of Rocky Bay, Chief Clinical Officer and all attendees of the final PhD research presentation conducted on site at the Rocky Bay head office and streamed digitally to the other sites. Subsequently a digital copy of the proposal was provided to support further circulation and utilisation of the document. This document is provided in the thesis to demonstrate the output of the study provided to the partner organisation and to support the submission of a cohesive body of work. It is however, written in a business style and to the specifications of the Rocky Bay clinical department, with the occasional use of organisational specific terminology to support the understanding and dissemination of information within the organisation.

9.1 Preface

The proposal document included below has been provided to Rocky Bay as the partner organisation and appears in this chapter from the next page, in the original format. The document will be redacted from the publicly available thesis document to ensure it remains under commercial confidence. Additionally, Appendix 12 includes a series of other telepractice and Rocky Bay specific outputs created during the project to meet the information needs of the organisation.

> Reference: Co-designed Telepractice: Improvement and Implementation Proposal. Presented to Rocky Bay Executive and Clinical Department Management. Co-authored in collaboration with Telepractice Research Co-designers and project Peer Researcher. 2023.

REDACTED UNDER COMMERCIAL CONFIDENCE

9.2 Chapter Summary

This chapter has provided insight into the findings and recommendations of the research study which were specific to Rocky Bay as the partner organisation. These findings included service values which were advocated for by the co-designers involved in the proposal design, as well as a detailed summary table of findings and recommendations which was mapped to the five domains of the CIFR. The telepractice improvement and implementation proposal was well received by the Rocky Bay executive and clinical management, as it provided them a clear pathway for improving their telepractice service delivery and customer experiences.

The next chapter provides a reflection on the roles of the embedded researcher and peer researcher, which looks to better understand lessons learned from this study and how they related to the wider literature.

CHAPTER 10: A REFLECTION ON EMBEDDED AND PEER RESEARCH EXPERIENCES

This chapter includes two different reflection processes, documented to understand the learnings of both the embedded researcher and peer researcher roles as experienced within the context of this study. This is important in reference to the contextual epistemological underpinning of the study, which framed all meaning as being co-produced by the participants with the researchers, thus positioning the researcher experience as an integral component of the study. Additionally, critical realism assumes one truth which is described as multiple perspectives of reality linked to our own individual experiences. Therefore, reflections of the embedded researcher and peer researcher experience help to situate the findings of the study in comparison to other literature, while continuing to place lived experiences as central.

The first reflection is in the form of a commentary which I authored as the embedded researcher titled "A bridge between worlds: embedding research in telepractice co-design with disability community", which explores how I view my lived experience in comparison to other published accounts of embedded research.

The second reflection relates to the peer researcher role and was completed in a collaborative process with Peer Researcher Will Scott-Jeffs and Industry Supervisor Mai Welsh and takes the form of ten recommendations for future peer researchers and research teams. These two different reflections are included in the format which most accessibly demonstrates the thoughts and feelings of those involved.

10.1 Embedded Researcher Reflection

The commentary included below has been published open access in Learning Health Systems and appears in this chapter from the next page, in the original format, with the intent to enable future embedded researchers and their research and industry colleagues or supervisors to be better equipped to anticipate and respond to the challenges of this unique role.

> **Commentary:** Benz C. "A bridge between worlds: Embedding research in telepractice co-design with disability community." Learning Health Systems. 2024;n/a(n/a):e10428. doi: https://doi.org/10.1002/lrh2.10428

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DOI: 10.1002/lrh2.10428

COMMENTARY

Learning Health Systems

A bridge between worlds: Embedding research in telepractice co-design with disability community

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Abstract

Introduction: Co-production approaches are increasingly being advocated for as a way of addressing the research translatory gap while including patient and public involvement in development of services they access, and particularly in disability service provision. Embedded research (ER) is a method which integrates the researcher within the target organization to better facilitate both co-production of research outputs and the reduction of the research translation gap. The aim of this reflection is to better understand the commonalities and differences between ER in a disability context to accounts published in academic literature.

Method: A review of embedded researcher literature was completed in combination with a personal reflection of lived experience as an embedded researcher within a disability support service organization. The reflective process included review of research journal entries and other records of lived experience (photographs, audio recordings, drawings) maintained throughout the period in the role of embedded researcher. A reflexive thematic analysis process was used.

Results: I reflect throughout the article upon five themes which highlight both the commonalities between my experiences and those of other embedded researchers as well as instances where they differed. The five themes include (1) A knowledge bridge, (2) Considerations of positionality, (3) Ethical complexity, (4) Anticipating change, and (5) Existing in the in-between together.

Conclusion: Experiences of ER appear to transcend the discipline in which the research is being embedded, and while the lived experience in a disability host organization was invaluable in facilitating a successful co-produced research project, significant avenues for improvement exist in terms of ethical frameworks, methodological guidance, and communities of support.

KEYWORDS
co-design, disability, embedded research

1 | INTRODUCTION

Embedded research (ER) literature frequently draws methodological justification through limiting the research-to-practice translation gap,[1] by integrating researchers and co-producing research within organizations. Value in reducing the translation gap has been demonstrated in a variety of contexts including climate science,[2] public health,[1] child protection,[3] education,[4] medicine,[5] and immunization.[6,7]

However, this is the first paper to my knowledge which focuses on the experience of ER in disability and social care settings.

Repeated calls exist both in academic literature[8] and by prominent disability advocates[9] to elevate the involvement of people with disability and their families in decision-making for areas impacting them. In order to facilitate inclusive practices such as community-based participatory research,[10] there is a need for researchers to assimilate into the disability community to understand their needs and tailor research enabling them to participate in co-production.[11] Roles that bridge the gap between community, providers, and research have the potential to support the growth of partnerships and collaboration. The ER role has been described as occupying the space in-between research and practice.[12] An alternate bridging role is a peer researcher, who occupies the space in-between community and research, in this case people with disability.[13] While both roles were present in this project, peer researcher reflections are described separately.

In this paper, I reflect on the process of becoming an embedded researcher in a disability support service provider, and the challenges of this undertaking for both research and practice. Through reflecting on the ER literature and my lived experience, the reader is invited to consider the identified commonalities and the implications for future ER in a disability context. Embedded researchers for this paper are defined as people who work inside a host organization while maintaining affiliation with a university.[12] Their purpose is implementing collaborative jointly owned research and fostering a mutually beneficial relationship.[1]

To situate my personal context, I have a professional background as a senior physiotherapist with experience using telehealth in hospitals, and undertook a role as an embedded PhD candidate within a disability support service provider organization focused on telepractice service co-design. Telepractice is the delivery of predominantly clinical services such as allied health and nursing to people via telecommunications.[14] In this project, it refers to real-time video call therapy sessions between providers, people with disability, and their families. The project aimed to assess current telepractice service delivery and co-design an improvement and implementation proposal in collaboration with people with disability and clinical staff over a three-year period. Co-design was the predominant method used to conduct the research, with sharing of power and decision-making with the co-designers (people with disability and staff) a priority throughout the implementation. The project included only one embedded researcher role which was funded by an Australian Government doctoral scholarship and a part-time peer researcher (person with disability) role funded by the disability support service provider. Further information on the co-design and outputs is published in Benz et al.[15]

The methods used in this reflection included a review of embedded researcher literature utilizing both database searches and reference list reviews of relevant articles to form a literature base to analyze in combination with personal reflection data. The personal reflection data collected during lived experience included research journal entries and other records of lived experience (photographs, audio recordings, drawings) maintained throughout the period in the role of embedded researcher. A reflexive thematic analysis of the personal reflection data and published literature was completed, and five themes formulated from the analytic process.[16] The five themes discussed below include [1] a knowledge bridge, [2] considerations of positionality, [3] ethical complexity, [4] anticipating change, and [5] existing in the in-between together.

2 | A KNOWLEDGE BRIDGE

Reflecting upon the beginning of my journey as a PhD candidate embedded researcher, my mindset was that of being the link from research to the disability organization who had initiated the collaborative partnership. I was to funnel information toward the organization in return for willing research participants. However, I came to appreciate that the knowledge transfer was a process, and as Taylor et al.[2] referred to ERs as "spanners" which spanned the gap, I came to reflect on embodying a kind of bridge. This change of mindset was marked by pivotal learning instances such as receiving guidance on the language of disability, such as the tension between the use of *identity first* (disabled person) versus *person first* language (person with disability) and the importance of being guided by each person's preference. My understanding of the importance of language was built through the privilege of learning from those who shared their experiences with me. I endeavored to share these lessons with the research members of the project team and acknowledged the importance of language in all academic publications. Lloyd[3] reflected on valuing similar access to the language and world of child protection.

Co-location was essential to what Cheetham et al.[1] referred to as "organisational adhocracy" which involves creating incremental change when the opportunity presents. With the realms of academic literature largely inaccessible to most disability staff and consumers, I found essential groundwork to improve the understanding of the ER role and research more broadly often occurred in relaxed informal settings where open minds and curiosity had space to exist.

3 | CONSIDERATIONS OF POSITIONALITY

Multiple ER reflections discuss the importance of considering positionality in their interactions.[2-4,17] The essence of ER is to be neither an insider nor an outsider researcher,[4] thus my aim was to build trusting relationships with clinicians and people with disability, while using the insights they imparted in a sensitive and ethical way. In the context of a co-design[18] project, it was essential to maintain realistic contextual expectations of what the host organization could achieve to the co-designers, while not over-disclosing privileged knowledge of financial pressures and other constraints.

Another aspect of positionality discussed in the ER literature related to assuming the role of the "critical friend"[1,17,19] or "critical niece."[3] The role of the critical friend provides an outsider perspective which assists in questioning and reflecting from an alternate viewpoint, and is posited to be a respected influence.[17] Whereas the critical niece/nephew role is viewed as junior or new to an area in an effort to be nonthreatening and put staff at ease through an assumption of ignorance.[3] In my experience, the tactical self-depreciation of the critical niece role through an honest ignorance of disability practices needed to be balanced with the assertive influence of the critical friend. This was challenging and required significant emotional labor and maturity.

4 | ETHICAL COMPLEXITY

The building of relationships, trust, and social capital which have repeatedly been described as foundational to successful ER,[2-4] impart a level of responsibility and ethical consideration. The lack of clarity with regard to periods of embedded research to prepare for ethics approval[4] and nondisclosure and information-sharing agreements[3] are relatively obvious areas for further progress in ER practice which at present remain without clear frameworks. While important, as reflected by Rowley[4] in their work with vulnerable families, ethical considerations of ER are often far more complex and nuanced than current ethical approval processes can provide guidance with. When gathering contextually meaningful evidence,[6] there is the potential to develop feelings of responsibility and conflicted loyalty particularly in contexts with marginalized populations.[4,6]

Differing from traditional ethnographic research methods where ethical approval is sought to immerse in a context to collect data,[3] this project involved participating in the context to focus on co-design. Ethical approval did not explicitly include provisions for data gathered in the in-between, before and after structured research sessions. Thus, posing the question as to how to manage these learnings. In these instances I predominantly relied on personal judgment regarding the intent by the person to consent for research use. This became particularly complex when interacting with people with disability, compounded by very limited available literature reflecting on direct contact with vulnerable populations such as Rowley.[4] With the benefit of hindsight, I would proactively gain informed consent for data collected anecdotally in the in-between, with an explicit description in participant information and consent forms. However, this is reliant on a person's awareness and proactive inclusion, therefore, I would also suggest there is a need for development of ethical approval processes which are designed to cater for participatory research formats such as co-design and embedded research, which are increasing in frequency of use.

5 | ANTICIPATING CHANGE

Building the foundations of trust and relationships to facilitate the bridging of knowledge involves certain conditions and preparations.[1,3,12] The ER role is often novel, and certainly in my case required considerable procedural flexibility and negotiation of organizational processes. I additionally benefited from an organizational counterpart[2] to vouch for my presence. This counterpart was able to open doors to meetings, introduce me to notable staff, advocated for my needs, and welcomed me to the organization. Contrastingly Duggan[17] described feeling a nuisance, which I surmise would have been my experience without this crucial advocate.

In the context of a research tenure or PhD candidature as was undertaken by myself, Duggan,[17] and Rowley,[4] projects commonly takes 4+ years, which is an extended period time, thus increasing the risk of significant organizational changes. When social capital is your bartering tool,[3] and staff or consumer buy-in is your goal, frequent and dynamic staffing changes are extremely impactful and not uncommon.[2,17] In my case, of the 17 managerial roles in the department I was assigned to, there were 19 staffing changes across a three-year tenure and only two unchanged positions. Additionally, the original primary supervisor who formed the partnership moved to a new tenure and was no longer able to directly support the industry and university partnership. This caused significant difficulty for relationship building and required extensive emotional labor to continually commit to rebuilding ER networks to progress the research.

6 | EXISTING IN THE IN-BETWEEN TOGETHER

When a high probability of change exists at the host organization,[17] and your extended absence from academic circles impacts collegial connections, there is a truth that the in-between can be a lonely place. Lloyd[3] described feeling like she was living in her lanyard, always answering to multiple organizational requirements. Whereas, to continue the bridge metaphor I introduced earlier, I felt like I was neither here nor there, often with a vague feeling of not really fitting in anywhere. Much like a bridge I could not truly be on one side or the other and in my hardest times, feeling like no one would notice I was gone unless they had needed me.

Embedded researcher roles appear to be increasing in frequency, with 104 ERs responding to a survey by Mickan and Coates[20] in Australia in 2019, and with this, an opportunity exists for greater support networks to be put in place to build networks of peer support. Taylor et al.[2] demonstrated significant advantages in creating a community of practice for seven ERs involved in a climate science initiative in Southern African countries. Loneliness was commonly justified throughout my ER experience due to the isolating nature of a PhD tenure, however, I would have jumped at the opportunity for an ER community network, to reflect on challenging situations and brainstorm strategies. Evidence from the literature suggested that commonalities exist in embedded research across career stage (masters to post-doctoral)[2] and field of study,[1-4,6,17] therefore a community network could take the form of a university wide forum, or a network which is geographically located, that is, Australasian or European embedded research networks. On a smaller scale, creating more than one embedded role within a research project or academic department with planned opportunities to collaborate, reflect, and debrief.

I would also posit the need for greater awareness and learning opportunities for those in supervisory roles, to better understand the intricacies of being embedded.[12] Although my supervisory team were greatly experienced, a more substantial appreciation of the unique characteristics of ER would have benefited all.

7 | CONCLUSION

In conclusion, while the lived experience of ER in a disability host organization was invaluable in facilitating a successful co-produced research project, significant avenues for improvement exist in terms of ethical frameworks, methodological guidance, and communities of support. Greater awareness is required that while it is a privilege to be invited to experience both a host organization and a university, even though you may experience both worlds, you won't ever belong to either. This position is unique to the ER role and while these are the reflections of a single ER in a disability organization, this and other reflections were well supported by ER literature across a wide range of sectors. Experiences of embedded research appear to transcend the discipline in which the research is being embedded, therefore university-supported community of practice for all embedded post-doctoral, doctoral, or higher degree researchers would be beneficial.

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The author declares that they have no competing interests.

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10.2 Peer Researcher Reflections

This section is based on a scientific poster written in collaboration with Will Scott-Jeffs in his role as Peer Researcher, and Mai Welsh in her capacity as Industry Supervisor and Will's line manager for the duration of the project. These reflections are included in the thesis to acknowledge the importance of the learnings gained through incorporating the peer researcher role within the study. Drawing upon the reflections and recommendations gathered within this piece of work enables Will and Mais' voices to be elevated, as their lived experience of the peer researcher role must be respected in the same way that my voice as the embedded researcher is heard in the previous section of this chapter.

The inclusion of a peer researcher role as described throughout the study had a significant impact on how the study was shaped, played a pivotal role in the facilitation of the co-design and required a willingness to relinquish certain preconceptions in empowering people with disability to lead change. The peer researcher role in this study was grounded in the four co-design principles by McKercher[54] of sharing power, prioritising relationships, using participatory means and building capacity. Within our reflections of the role, it was agreed that whilst important lessons were learned, the benefits far exceeded any challenges. We valued the experience, gaining both personally and professionally beyond our expectations, and we welcome the opportunity to embark on future journeys of peer research while encouraging others to do the same. The reflections of the peer researcher role take the format of ten recommendations or tips for successfully integrating a peer researcher with lived experience, these include:

One - Identify the key areas where a Peer Researcher will add value
Consider the project objectives and target population. Identify the skill mix of the research team as well as the gaps and opportunities that exist. Develop a Job Description with clear expectations and responsibilities outlined.
Two - Recruit widely
Seek representation from diverse backgrounds and experiences relevant to the research topic. Advertise the position via networks frequented by the target population.
Three - Appoint two or more Peer Researchers
This provides greater sharing and distribution of power. More than one view of lived experience is represented. Peer Researchers benefit from supporting and learning from each other. The research team can allocate a greater number of tasks. Provides a backup plan if a Peer Researcher becomes unavailable.
Four - Remunerate fairly
Pay according to industry benchmarks. Casual employment offers flexibility to both parties. However, this requires forward planning so shifts can be allocated with sufficient notice. Keep in touch with the Peer Researcher if lengthy breaks occur.

Fixed term contracts might be a viable option for some projects, need to weigh up the pros and cons.
Five - Involve the Peer Researchers throughout the entire project
Engage Peer Researchers in all project phases to keep their voice elevated throughout. Ensure there are opportunities to contribute to decision making. Consider their role in community translation of project findings.
Six - Onboard fully
Recognise that Peer Researchers may have experienced negative barriers to employment and may feel overwhelmed in their new role. This can manifest in various ways such as feeling reluctant to ask for help for fear of judgement or retribution. Implement a variety of support structures and systems. Provide sufficient orientation to all aspects of the role including the people, location, policies, systems and processes. Consider the geographical work location and transport requirements and accommodate their needs as much as possible. Allocate a desk in a conducive setting with a member of the research team located nearby for reassurance and support.
Seven - Recognise formal and informal support networks
Peer Researchers may benefit from accessing external supports. Discuss how this can be reasonably incorporated with clear boundaries and timeframes. Ensure there is a shared understanding of how it will work in practice including communication channels and frequency.
Eight - Support and supervision
Invest time in establishing relationships to build trust. Identify strengths and interests as well as goals and aspirations. Frequently check in to give support, reassurance, guidance and feedback. Provide training opportunities to build confidence and capacity. Have an industry line manager that differs from the university researcher to provide an alternative source of support for various aspects of work. Provide regular supervision sessions to reflect, coach, support and develop.
Nine - Have fun
Take time out to celebrate milestones however big or small. Provide acknowledgement and recognition of contributions. Be creative, think of fun ways to engage. Attend a social event together.
Ten - Consider opportunities beyond the project
When the project ends, parties may feel a sense of loss. Work with key stakeholders to identify potential career pathways and training opportunities. With consent, liaise with internal and external stakeholders. Provide a reference. Host a wrap party. Stay in touch.

Table 1: Summary of Peer Researcher Recommendations

These recommendations reference three different resources which would prove valuable for other researchers looking to include a peer researcher role, firstly as already referenced, Beyond Sticky Notes by McKercher[54], the second resource being Participatory and Inclusive Autism

Research Practice Guidelines by den Houting[168] and finally Building Effective System-Wide Disability Research Capacity in Australia by Buick et al[169]. Some of the recommendations are based on strategies that worked well in our context, and others represent aspirations of how we would change our actions in future opportunities from our learnings.

10.3 Chapter Summary

This chapter provided an opportunity to reflect on the lived experiences of the embedded researcher and peer researcher roles and explored in relation to the existing body of research, in an effort to understand potential learnings and provide recommendations for future studies including similar roles. These roles had a significant influence on the progress of the study and additionally on the people who undertook them. Both the peer researcher and embedded researcher roles are shaped by those who undertake them and as such the reflections similarly unique.

The following chapter is the final chapter of the thesis and concludes this body of work through reflecting on the significance of its contribution, how the findings correlate to the original aim and objectives of the study as well as limitations and future recommendations.

CHAPTER 11: DISCUSSIONS & CONCLUSIONS

The final chapter of this thesis includes an evaluation of the research findings in reference to the initial aim and objectives of the study which is followed by an exploration of the study relevance in relation to the current policy, research and cultural climate. These sections lead into the significance and originality of the study, strengths, limitations and concluded by a summary of recommendations for future practice, research and policy.

11.1 Discussion of Findings

The aim of this study was to demonstrate the value of embedding research into a provider organisation to facilitate the co-design of a telepractice service delivery model. The thesis provides evidence to support the proof of concept for implementation of co-design through an embedded research model to support successful collaborative service design. This section discusses prevailing themes of the overall study relating to this aim, including the desire for a hybrid model which combines telepractice and in-person services in the theme *We Want Both.* The second theme *Lived Experience is the Key* discusses the key element of lived experience and how it underpins all aspects of the study from the use of telepractice to the embedded and peer researcher roles. Challenges experienced in implementing co-design in a research system are critically analysed throughout *System Un-readiness for Co-design;* and finally the ways in which visual practice and other accessible communication techniques have shaped this study are highlighted in *Non-traditional Research Stories.*

11.1.1 WE WANT BOTH

The prevailing sentiment from all customers, clinicians and managers both directly consulted in the study and described in the literature, was that the most appropriate use of telepractice is as an adjunct to in-person services, offered as a hybrid delivery model. Several justifications for this preference were cited including the desire to build rapport and complete assessments in-person, while using telepractice to coach, empower, ease stress and improve access for customers and families accessing therapy.

When viewed as independent and exclusive delivery options, in-person is viewed as optimal for therapy but costly in relation to time, money and in-flexibility. Telepractice in comparison was often viewed as the poorer alternative in terms of intervention delivery, with alternate benefits shown in enabling access, reducing fatigue and improving flexibility. A combination of the delivery modes enhances care [34], with models complementing each other[157], and adds a layer of flexibility for customers, clinicians and service providers[163, 170-172].

As discussed in the scoping review of chapter four[173], the complete conversion to telepractice was deemed not only undesirable[89, 171], but presently impossible due to systemic inequalities[167]. Evidence presented in chapter five on the impact of the COVID-19 pandemic on telepractice implementation[174] demonstrated that while periods of near exclusive use occurred, exceptions to the rule always existed, and it was not a long-term solution.

While telepractice is predominantly viewed as an adjunct to in-person care, service providers should nonetheless consider methods to promote equitable access to augment rather than replace[175]. However, it is evident through the works of Pinkerton et al[159] and Murphy et al[12], among others, that while service provider level improvements such as the scope of this study are required, there are broader systemic level inequities evident within and across disability support systems domestically and internationally. These system level inequalities were identified within the telepractice implementation and improvement proposal of chapter nine, where recommendations to the partner service provider included lobbying the regulatory body (NDIA) to support hardware and internet inclusion in the NDIS price guide. This direct recommendation is supported by a series of policy recommendations throughout the study publications.

Telepractice has been demonstrated to decrease the rate of missed appointments incurred by families[176], as well as improve flexibility and access for full time working parents[114]. These benefits, as well as those described by a clinician in chapter six that combining telepractice with in-person therapy sessions resulted in goals being met more frequently, are valuable evidence to support the use of telepractice in conjunction with in-person sessions. However, a key barrier to customers and clinicians engaging in this flexible hybrid approach is garnering an understanding that completing therapy via telepractice is intended to be similar to in-person, but not the same. The argument made by this study was that utilising visual practices such as metaphors could improve understanding of this concept through describing the differences in likeness to left and right shoes. If setting a baseline level of expectation that telepractice and in-person are unique and complementary therapy delivery modes is the first step to improved and sustained uptake, then the second step proposed by this study is to utilise the power of lived experience.

11.1.2 LIVED EXPERIENCE IS THE KEY

Lived experience was found to be a key element in all aspects of this study, including improving the likelihood of telepractice use. Telepractice trials provided to families in Hines et al[91] were cited as a major impacting factor on uptake for customers. Additionally, simulated trial sessions between providers were posed as an opportunity for clinicians to gain experience by Thomas et al[34] and Abbott-Gaffney et al[36]. Recommendations by customers to *give it a go* and that telepractice isn't *as scary/bad as anticipated* in the journey map analysis of chapter eight, support this concept that lived experience is a key to unlocking an understanding of telepractice.

Opportunities for a trial session without financial cost or therapeutic goals, have the potential to lower the bar of expectations for telepractice use sufficiently that more first-time users would participate.

For those who have lived experience of telepractice, it has been shown to improve clinician confidence[34], improve customer self-esteem, and create a sense of feeling valued[91]. However, it has been shown that customers and clinicians have demonstrated differences in perspective and experiences when using telepractice[177]. Therefore, if it is anticipated that the lived experiences are different, to improve the overall experience of a telepractice delivery service, it requires both clinical and customer lived experience to guide the process of improvement.

Embedding a researcher within the partner organisation whose lived experience included providing therapy as a clinician, integrates tacit knowledge, which provided a commonality of lived experience with the host clinical department. Building relationships through common experiences[120] assists with forming the foundations to collaboratively create research which is jointly owned[178]. The idea of the embedded researcher being a boundary spanner[178, 179], or a bridge between worlds, is steeped in the assumption of lived experience. Both the lived experience of research and/or industry experience present from the outset[179] and the experience of being present within the host organisation creates the unique position of knowledge from which the embedded researcher operates. This experience assists in creating research which is better situated within the needs of the community[180], and additionally reduces perceptions that research is somewhat removed from the day-to-day clinical complexities[118]. Reflections in chapter ten and by[179], highlight that these lived experiences, while valuable for the life of the study, are not well placed in the current academic or wider employment market to support the embedded researcher in developing their career pathway. Furthermore, acknowledgement of the value present in the lived experience of embedded researchers would improve the uptake of these roles by well suited PhD candidates and increase the utilisation of these roles to better situate research within the target community.

Facilitation of co-designed research studies have historically included an expert designer being parachuted in with no lived experience or understanding of previous lessons learned[107]. In antithesis of this outsider approach to facilitation of co-produced work with community, this study incorporated both an embedded researcher with clinical experiences and a peer researcher whose role was to represent the lived experience of people with disability.

The peer researcher roles promote greater empathy and rapport for academics with community members, as well as provide a peer contact and role model for community participants[128]. As was evidenced by this study and others[128], peer researchers have the potential to decrease stigma and embarrassment for community participants through modelling use of support strategies, managing emotions such as anxiety and embracing their lived experience. While peer designated roles draw on shared lived experiences as a means to create mutual connection and support, there is a lack of value currently ascribed to these contributions in a broader workforce context[106]. This study, while committing to incorporating the peer researcher role in a non-tokenistic and meaningful capacity, was certainly limited by the financing and resources required to support further engagement. Tasks such as reviewing literature, writing publications and prototype dissemination would have benefitted from further peer researcher input. However, in a strength-based employment model, within the scope of funding and resources available, the peer researcher was dedicated to tasks which better suited his skills and interests, and the overall interests of the study. Similar tension of strengths-based involvement versus available funding and resources were described by Montgomery et al[123].

There are those who argue that lived experience as a requirement for centring the perspectives of a target population is too harsh and unreasonable on the dominant culture; this perspective appears common to those whose identity feels threatened by sharing[181]. The questioning of a person's right to an opinion on specific topics attempts to position people with lived experience as adversaries in some kind of *turf war*[181]. This position is rejected by this thesis, and many others[105-107] who support creating the space for all and maintaining that curiosity and openness of others lived experience are fundamental in creating progress.

Increased recognition of the value of lived experience in the co-production of research[117], service design[42], product development[182] and policy creation[105] and implementation positions it as a key component of any co- related initiative. In the context of people with disability, the thesis findings support Stephens et al[107] in their belief that the passive involvement of people with disabilities is inadequate in the aim of solving accessibility related problems. There is increasing acknowledgement of the value of lived experience within policy, research, knowledge production and advocacy contexts[105], but it has yet to progress to more progressive peer led or peer delivered services[106]. With more people with disability becoming experts in the services, products and policies which they co-design or co-produce, as an extension of this it would seem prudent to utilise this lived experience in the implementation, delivery and evaluation.

11.1.3 SYSTEM UN-READINESS TO CO-DESIGN

If lived experience is the key, then it follows that co-design is the way the key is used and thus co-design has the potential to open many doors. Co-design is evolving into a societal expectation as the current best practice method to use the lived experience of the community to guide societal development and improvement. However, while it is generally accepted that engaging people in decision-making processes that impact them is a good idea[106], it is not well established whether the system itself is equipped to support collaborative decision-making processes such as co-design. This leads to the question of whether these processes are genuinely impacting on their intended target or whether they remain a tokenistic[123] or idealistic method unable to change well ingrained systems.

As a research method, co-design requires flexibility in its structure, and a capacity to respond to the needs of the co-designers, especially in addressing imbalances of power and capacity building of participants[54]. However, the success of strategies selected to respond to the needs of the co-designers is presently not well understood or evaluated. While Stephens et al[107] drew on some reflective practices to gauge preliminary outcomes of specific strategies aimed at improving equity of access for people with disability in co-design, many co-design adaptive processes including those in this study remain relatively reactive. Other than voluntary feedback of co-designer participants, it is presently difficult to establish if strategies utilised to support inclusive participation are as effective as anticipated through measures such as number of comments made by customer versus professional co-designers[107]. Such outcome measures or success indicators are complex to establish as access remains a site of friction between all parties with no one-size solution or simple answer[107]. Despite the lack of measured success, access initiatives frequently benefit a wider range of co-designers than the specifically intended targets, as demonstrated in feedback from this study and Stephens et al[107]. Additionally evaluative processes are required to understand the importance of different components of the co-design process and the impacts of co-designed interventions on the targeted disability or health intervention[183].

Another tension evident within the academic system in the use of co-design is the precedence of what is viewed as high quality research, comparative to the requirements for successful co-design. Researchers without the appropriate mindset or disposition often view co-design as time consuming, risky, complicated, emotionally draining, lacking stability and potentially open to external events[184]. They perceive co-production as competitive rather than collaborative, and while these assumptions are not necessarily incorrect, other than being in competition with other stakeholders, the perception that these aspects of co-design are a negative is potentially erroneous[184]. The high degree of uncertainty and vulnerability which is often felt in co-design[131] opens opportunities for learning and building of trust, and through open communication the differing goals of researchers, clinicians, organisations and community members can be collaboratively reached[149].

For those who are committed to working meaningfully through co-design it has the potential to be a key methodological foundation for addressing complex transdisciplinary problems and multisectoral challenges[133]. Unfortunately for these groups of collaborative minds, the current process for funding acquisition and ethical approval remains prohibitive to involvement from people with disability or the wider public[123]. In terms of funding applications, one systemic issue relates to calls for grant funding which require detailed descriptions of the planned research and associated costs to determine the value and justifiability of the funding request. However, funding is required for remunerating lived experience experts for their time[107] in co-planning and co-designing, therefore applications for grants are submitted prior to the intended intervention being actualised. An increased prevalence of multi-stage funding applications would better support the initial planning and co-design of a research study prior to a second round to fund implementation. Unfortunately, while this change may appear relatively simplistic, the time constraints around application, approval and allocation of funding generally renders this option presently impractical. A second issue relates to the ability for organisations and communities to lead co-produced projects, as pragmatic barriers such as insurance requirements are prohibitive in responding to research funding calls[123].

Similarly, ethical application processes are time consuming and impractical in the context of co-design where the repetition of amendments for approval create repeated delays in progress and where organisational and other stakeholder availabilities may not align with ethical board scheduling. As described in chapter eight, this study included multiple written amendments for ethical approval, one of which required almost second-daily follow-up phone calls to progress a relatively minor amendment prior to a quarterly clinical department managerial meeting which ,if missed, would have delayed progress by multiple months. While this is not an argument for the removal of ethical processes, it is highlighting issues already described by Rowley[185] that a one-size-fits-all ethical approvals process is not the optimal solution, in the same way that accessibility measures are not universally applicable. Similarly, the present ethical application process does not create provisions for information and findings collected incidentally in the in-between, the before and the after structured research sessions[120].

11.1.4 NON-TRADITIONAL RESEARCH STORIES

Improved translation of research into practice is a fundamental aim of strategies such as embedded research, co-production, peer research and community-based participatory-research. Communication of information throughout the collaborative study process and subsequently through research dissemination must meet the needs of the target audience to support successful translation. In the present environment of rapidly expanding resources available on the internet, where approximately four billion webpages currently exist[186] in combination with the Plan S mandate for open access publication of research[187], there is a vast sea of available information.

For the information in this research study to be of use to people with disability and clinical providers, there were a series of characteristics required to improve its accessibility and usability.

Firstly, from an output publication perspective, clinicians and provider organisations in our Australian context have limited access to database repositories of research publications, therefore publishing exclusively as open access journal articles removed the first potential barrier to research dissemination. Once the question of access to the journal articles was resolved, the next consideration was improving the accessibility of the findings described within the publications.

Publication of scholarly academic articles with complex concepts and language use, create a barrier for the wider community to understand the concepts being described[188]. A number of strategies have been utilised in the publication of research findings which cater to specific community subgroups, including the use of story telling and poetry in Australian Indigenous Birthing experiences[189], stop motion movies in rare genetic disease[190], hand drawn visualisations of cell biology[191] and collaborative fictional story writing with children and young people[188, 192]. The predominant strategies utilised in this research study were analytic metaphors, videos and infographics. Metaphors in published literature are becoming more prevalent, particularly in the areas of disability[144] and childhood research[193], and were incorporated by this study to support visualisation and practical understanding of abstract or complex concepts such as the difference between in-person and telepractice using a pair of shoes.

Video outputs were predominantly internal to the research participants, however their impact should not be minimised. As Ho et al[147] discussed, people with disability have expressed the preference for information to be described verbally rather than written, which resulted in this study accommodating this accessibility requirement through publishing video information clips to support the consent process, as well as focus group and workshop preparation. These were supported with written versions which as aimed to meet diverse communication needs[194]. The prototype was similarly formatted as a video storybook with audio voiceover and visual captions to provide accessibility of the information for people with disability to improve their inclusion in the research[117].

Infographics are becoming a more prevalent method of disseminating research even within the academic community[195], and provide the opportunity to summarise large text documents into single page highlights. This condensation of information assists in reducing the cognitive load and improves usability for both academic and non-academic audiences[196]. The series of infographics produced for this study utilised a consistent colour palette and logical order of standard components across the series to further reduce cognitive load[197]. The aesthetic appeal and brief length aimed to invite the reader to engage with the project information and provided avenues to access further information such as the full publication through a link or QR code. However, one area of improvement for future infographics would be to ensure appropriate formatting of the PDF files for screen readers to ensure accessibility for the vision impaired[198].

The final configuration of the research outputs were non-traditional, however they were cognisant of the accessibility needs of those who the research aimed to inform. As presented as a theory by Stephens et al[107] there is a growing understanding that access is relational and the adjustments which help those with disability invariably help everyone involved. However as is common across much of the co-design, disability and translatory research fields these developments are an ongoing process and not a settled outcome[107].

11.1.5 SUMMARY

Each of the points discussed above, demonstrate the advantages of utilising a non-exclusionary mindset, in that welcoming something or someone new or different does not in fact predicate the removal of something established. But it may indicate the need for adaptation and progress, such as the inclusion of telepractice with in-person delivery, including the lived experience of people with disability and clinicians with the expertise of researchers, acknowledging the need for people led flexible research methods with rigorous medically valid methods and finally that high quality research outputs can co-exist with accessibly and aesthetically appealing alternatives.

11.2 Study Relevance

The focus of this study resides at the crossroads of disability, digital health and co-design, with the overlapping areas of particular focus in current policy, research and society on local and international levels. As this study resides in the intersection of all three areas, the findings are of particular relevance to a wide range of initiatives, are on the forefront of cultural change and provides a blueprint for others who would venture to these areas in the future.

As discussed in co-design methodology paper in chapter seven, within the current term of government the NDIS Act was amended specifically to include the term co-design which acknowledges the importance of providing people with disability and their carers a seat at the decision making table[70]. Co-design is not only gathering momentum as a synonym for good participatory design practices in legislation, it is also evident in recent societal recognition of the contribution of people with disability including Dylan Alcott as 2022 Australian of the year[63] and Kurt Fernley appointed the Chairman of the Board of the NDIA, both of whom being disability advocates, elite para-athletes and wheelchair using people with disability[199].

Co-design initiatives promoting the employment and visibility of people with disability are also becoming more prominent focus of the Australian government and other businesses including the *Shift20* initiative, which looks to increase the visibility of people with disability in the media to twenty percent to provide an accurate representation of their presence in the community[200]. This study similarly included a person with disability in a peer researcher role to improve inclusivity and representation for the disability community within the research team. Representation and visibility were additionally prioritised through the telepractice prototype, which included both customers with disability and cartoon depictions of people with disability in the final production.

The Field is a disability accessible employment website launched November 2022, built for people with disability by people with disability to improve their opportunity to participate in meaningful employment and decrease the barriers and prejudices experienced by people with disability looking to enter the workforce[201]. This platform was an initiative lead by disability advocate and Australian of the Year Dylan Alcott and funded by the Australian Federal Government to decrease barriers for both potential employees and employers in matching available roles to people with disability who suit the positions[201]. This provides an excellent example of how co-designing services such as employment websites with people with disability can improve their experience and access.

Both Shift20 and The Field gained widespread media attention and improved awareness promoting disability inclusive cultural changes, however, the first publication of each initiative was linked to their go live day. Developing these initiatives behind closed doors creates a dearth of knowledge for other organisations and initiatives who have intentions of inclusivity without a practical blueprint or case study examples on which to base their plans. This study provides a comprehensive case study which addresses co-design specifically with integrated disability accessibility considerations to promote not only the what of co-design in disability but also the how to[184].

Disability research has similarly increased in the use of co-design and the prominence of peer researchers with disability in recommendations published regarding good practice including various guidelines such as the Participatory and Inclusive Autism Research Practice Guides[168], the Building Effective System-wide Disability Research Capacity in Australia report[169] and the Co-designing with People with Disability Toolkit from People With Disabilities WA Inc[202]. While these guidelines and recommendations for best practice are important in recommending methods to underpin research with people with disability, there remains the crucial element that this study provides in demonstrating a case study example of how these recommendations may be implemented.

While acknowledging that this study is by no means perfect, and that if repeated there would be elements to improve, these reflections and comparisons to other contexts can only exist if the information regarding both successes and challenges are available for future projects to reference. This body of knowledge enables a process of learning both internally for the partner organisation and externally for the wider disability sector and links strongly to the recommendations of the recently released NDIS review[203], which indicated a need for continuous quality improvement to be prioritised and audited both at a system wide and individual organisational level. Co-design and research in disability could be scaled up to the magnitude of this study or larger, or similarly condensed down to small internal initiatives with the key elements of inclusive practices and evaluation with the intent of improving remaining constant.

In the final year of the study period, the embedded researcher, peer researcher, project sponsor, industry and academic supervisors as well as a co-design expert discussed the topic of empowering the community through co-designed, industry led research partnerships as a panel at the Medinfo23 conference. This conference panel discussed practical anecdotes and lessons learned through our lived experiences of co-designing telepractice and supporting technological evolution in the disability space. Two days later, one of the plenary panel discussions of invited keynote speakers discussed the topic of disability in digital health landscape and most prominent theme highlighted by the entire panel was the need to co-design services for people with disability in collaboration with them. In essence, our panel discussion was ahead of its time. In a conference where co-design predominantly referred to working with health care professionals, we represented the future where people with disability were employed to research digital health innovations in partnership with practitioner and organisational stakeholders.

The United Nations Sustainable Development Goals look to the future and aspire to reduce inequalities, for people with disability among others, and view the development of digital technologies as an opportunity to reach these targets[204]. With the prevalence of smart phones with videocall capabilities, telepractice and its acute care counterpart telehealth could provide access to services to previously inaccessible areas[58]. However, as much as technological innovation is crucial in the process, the appropriate planning, design and implementation of services which accurately meet community needs is equally as significant. This demonstrates the potential benefits of strategies such as co-design which partner technological innovations such as telepractice with local community services in areas that are underserviced either with disability supports, rehabilitation, allied health or acute medical and health care. While there are obviously significant areas of the world which experience inequities of access[58], regional and metropolitan Australia, as the location of this study, similarly experiences inequities of access to digital health and disability services[205]. The Australian National Digital Health Strategy utilise digitally enabled models of care such as telepractice to improve the accessibility, quality, safety and efficiency through integrating them into existing clinical workflows. However, the recent release of the first annual report of Australia's disability strategy Outcomes Framework reported that digital inclusion levels in Australia for people with disability continue to remain significantly lower than population baselines[97].These findings imply that further improvements are required to reduce the barriers currently experienced by people with disability. This study engaged in meaningful discussions with people with disability regarding their needs, to target the barriers they experience and improve their access of services. With more initiatives such as this conducted at the local level there is the opportunity to improve the alignment of digital inclusion for people with a disability on a wider scale.

11.3 Significance and Originality

The originality of the study is based in using an embedded researcher and peer researcher model to co-produce a research study with people with disability and providers of support services, which aimed to co-design a telepractice service delivery model. This study was one of the first to our knowledge on telepractice service delivery across people with disability with no limitation on age or disability type accessing allied health and other clinical services; and for providers in this area, the findings form a body of knowledge as an evidence base to adapt telepractice to their context.

The contribution to knowledge made by this study was, is and will continue to be impactful both academically and as a practical resource for provider organisations. This study has increased research-based awareness and capacity of customers and staff at the location of the study, and increased their agency in impacting services with which they interact. Additionally, the study has created bridge for communication between the academic and industry collaborators which enabled research methods to be used to produce an implementation plan to support the improvement of telepractice for the customers of the partnership organisation.

However, the what, the why and for whom are not seen to be the most significant and novel contributions to knowledge made by this body of work. It is the how, the process, the conglomeration or bricolage of methods and methodology, the journey taken that pushed the boundaries of what has been done and paves the way for how similar projects may be conducted moving forward. This impact aims to demonstrate a potential pathway for other provider organisations in the disability sector to engage in research co-production to produce high quality mutually beneficial outputs for service users, providers, organisations, policy makers and academics.

11.4 Strengths and Limitations

11.4.1STRENGTHS:

The basis of this research study was a triumvirate of methods including the embedded researcher and peer researcher roles combined with co-design. This combination is a unique strength and has created a research study with a strong grounding in the needs of the community. From the community, the inclusion of people with disability, clinicians and management representatives in the co-design group, created the opportunity for the formation of strong collaborative partnerships and improved understanding of each other's needs.

As this study was grounded within the partner organisation and aimed to address real world service provision for people with disability, it required a concerted effort to build strong working relationships. This involved balancing supporting the imagination of participating co-designers while remaining honest about the constraints of what could be delivered by the partner organisation. These discussions were a strength of the study and engendered a sense of realism, created a value proposition for each of the proposed improvements and trusted that co-designers would work within the boundaries of what was possible.

A significant legacy of the project was to set a precedence for inclusion of people with disability in decision making roles in future projects and research conducted by both the academic and organisational partners. This study provides a strong methodological framework for inclusion of people with disability in research projects through a wide variety of inclusive strategies and methods, demonstrating that accessibility and equitable inclusion should be considered at all stages of a study.

11.4.2 LIMITATIONS

In the consideration of limitations for this study, there are aspects of the study which are viewed as strengths within the internal context of the study, which are acknowledged as limitations in its transferability to future research replicability. Through prioritising the transferability of knowledge from research into practice, limitations were created in the transferability of this study to other research contexts. Throughout the thesis there is evidence of conscious acknowledgment of this limitation and advocacy for methodological adaptation by other researchers and organisations with guidance from the study findings, as an alternative to direct replication or generalisability. This study used a blended and flexible approach which met the needs of the co-designers and maximised inclusivity, as such the intention is to provide an exemplar for other projects to modify within their specific context rather than to provide a template for replication.

The triumvirate of embedded researcher, peer researcher and co-design methods were a true strength of this project. However, as this is the single known case study of this combination of methods, it is difficult to ascertain how prominent the characteristics of the individuals involved were in the success of the combination of methods.

The term telepractice was chosen for the study, however variations such as teletherapy and telehealth were used throughout the study as people describe their lived experience in terms most familiar to them. There is the potential that the intended meaning while assumed to be synonymous, varied across the participants. When working with people with disability and clinicians, the participants cannot represent the entirety of their communities and therefore proposed changes have the potential to increase barriers for some members of the disability community. Findings of this study are based on assumptions of meaning derived from analysing reflections of experience by direct users, or the reflection of service providers regarding recipient experiences, and in some cases the lens of academic discourse curated by authors of published literature. These lenses have the potential to dilute the ability to accurately reflect the user experience. Additionally, the COVID-19 pandemic was and remains a significant global impact on the delivery of health and disability services during the study period. The timing of interactions with the study in relation to pandemic contexts may have impacted on the reflections of each participant.

In the analysis of published literature to ground the findings of this study, a limitation exists due to the significant variation in disability system setup across countries and corresponding impacts on those access or delivering services. Efforts were made throughout the study to learn from international experiences; however, it is acknowledged that within the scope of service design, fundamental systemic restrictions can limit generalisability of findings. Excluding literature not available in English, and the search strategy being only inclusive of English language predominant journal databases are methodological limitations. These decisions may have impacted on the inclusion of journal articles, however the intent of evidence collection was to inform the direction of inquiry in the study context rather than systematically review all available evidence.

Frequently those without the means to access telepractice are excluded from research studies. While this project included participants who had not used telepractice previously, there is the potential that those who agreed to participate have higher levels digital literacy than those who declined or did not respond to study recruitment opportunities. Service providers and managers interviewed from around Australia are assumed to be stronger and more frequent telepractice users. They would have a correspondingly higher self-efficacy than their colleagues, therefore overall confidence of the cohort may be lower than depicted in the study findings.

11.5 Recommendations

A series of recommendations have been incorporated throughout the thesis within each of the published papers and from a practice standpoint in the improvement and implementation proposal in chapter nine. A summary of recommendations stemming from the study findings related to practice, research and policy have been gathered below.

Area	Recommendation
Practice	
	Integrate telepractice as a hybrid model in combination with in-person sessions to support flexible access to services which can respond to individual needs over the lifespan of their therapy services.
	Ensure practitioners are adequately supported in upskilling to provide services via telepractice and acknowledge the differentiation between remote intervention delivery and in-person delivery as a skill which requires learning and practice, not just technological skills.
	Anticipate that clinicians and customers will have a varied level of technological and therapeutic self-efficacy, and therefore tailored and flexible training and education opportunities are required to support the full spectrum of potential users to feel comfortable with telepractice.
	Understand the journey of customers who are engaging with telepractice and collaboratively identify challenges and opportunities for improvement. Avoid assuming providers can anticipate challenges experienced by customers.
	Utilise visual metaphors such as a pair of shoes as learning tools to ensure information is described in accessible and understandable forms. Describing telepractice in terms of familiar concepts can improve potential user’s ability to understand how it may be beneficial to them.
Research	
Telepractice	Further research regarding the needs of people who currently don’t have the hardware, internet or digital skills required to complete a telepractice session. This is required to be able to better anticipate their needs and improve pathways to equitable telepractice access.
	The completion of future research studies which evaluate the implementation process of a co-designed telepractice delivery model which is grounded in implementation science. This would improve our understanding of whether co-designed telepractice models are successfully implemented and meet the needs of users as intended.
	Further evidence based educational and upskilling strategies to support clinicians in the need to transition allied health and other clinician interventions to telepractice.
	Improved support for people whose services are not provided in their native language and the impacts of this on their experience of telepractice.

Co-design	Evaluations of co-designed initiatives in collaboration with the co-designers and community who are engaging with it, as well as evaluation of the co-design process to understand the impact of different components and strategies.
	Remuneration for ad-hoc and employment level contributions must be agreed upon at the outset and prioritise valuing the contributions made by people with lived experience equitably in comparison to professional contributions.
	When a co-design methodology is selected, ensure able time buffers are incorporated into the project schedule to enable trust building, co-authoring and the flexibility to respond to partner organisation and co-designer needs.
	Research studies created out of industry and university partnerships are vulnerable to stagnation due to turnover of staff in key partnership roles. Succession planning in these contexts is recommended to decrease the liability of delays or failure in project completion due to inability to continue without key stakeholder contributions.
	Utilise journey mapping as a method of understanding current customer experiences. The method is also beneficial to identify strengths and challenges of the service, to align improvements with user priorities.
	Using small groups with the privacy of a virtual breakout room or a large space where people can have separate private conversations can enabled increased participation for those who feel intimidated speaking in larger groups.
Embedded Research	Greater awareness and learning opportunities for those in supervisory roles to enable more comprehensive support of the embedded researcher including the unique characteristics of this type of role.
	Community of practice formation for embedded researchers either within university settings or across sectors such as health and disability which have a higher potential to accommodate embedded research, is recommended to ensure that appropriate support networks are available for those in a commonly isolating position.
Peer Research	Recruit two or more peer researchers to enable them to support and learn from each other, while incorporating multiple lived experience perspectives.
	Prioritise onboarding and integrating into the organisation, as frequently both the peer researcher role and organisation are unfamiliar to the successful candidate.
	Recruit to strength-based roles and identify roles and responsibilities best suited to the peer researcher, while actively empowering them to complete those tasks in their preferred style and methods.

Policy	
	Mandate internet access as a basic human resource and include it in community access provisions for the NDIS. Additionally, government initiatives for internet provision through provider partnerships that incentivise network access in rural or regional areas that subsidise access for people with disability are recommended to assist to decrease long term access and equity divides.
	Reinstatement of telepractice related hardware purchases under NDIS plan items to enable ongoing access to services for those who cannot independently acquire required technology.
	Development of policy and guidelines which are inclusive of the disability community which are rooted in collaborative principles and co-design.

Table 1: Summary of Thesis Recommendations

11.6 Conclusion

This final chapter of this thesis has evaluated how the research findings are situated within the literature and meet the aim initially set out for the study. It took the opportunity to highlight that while telepractice has promise, and its value is currently viewed as a hybrid model with in-person sessions. The value of lived experience and the need for further development in the integration of co-design and non-traditional dissemination opportunities in research systems were then explored. Subsequently building on those points was a section understanding the study relevance in relation to the current policy, research and cultural climate. These sections lead into revisiting the significance and originality of the study and an acknowledgement of study strengths and limitations, which was completed prior to a concluding summary of recommendations for future practice, research and policy.

In conclusion, telepractice has the potential for a promising future in delivering services to people with disability in conjunction with in-person sessions. For this future to be realised, a plethora of opportunities exist to improve the current experience of both customers and clinicians. Exploring a wide range of lived experiences builds a strong foundation to identify the required improvements in this case for telepractice, however this could be applied to a wide range of person-centred initiatives. Embedded and peer researcher roles have promise in guiding community-based participatory-research, and more specifically co-production of research, as their lived experience enables them to build mutual understanding and trust with the community. The contribution of this thesis is colourful, collaborative, impactful and welcoming to all who were involved and all who engage with it in the future.

12 APPENDICES

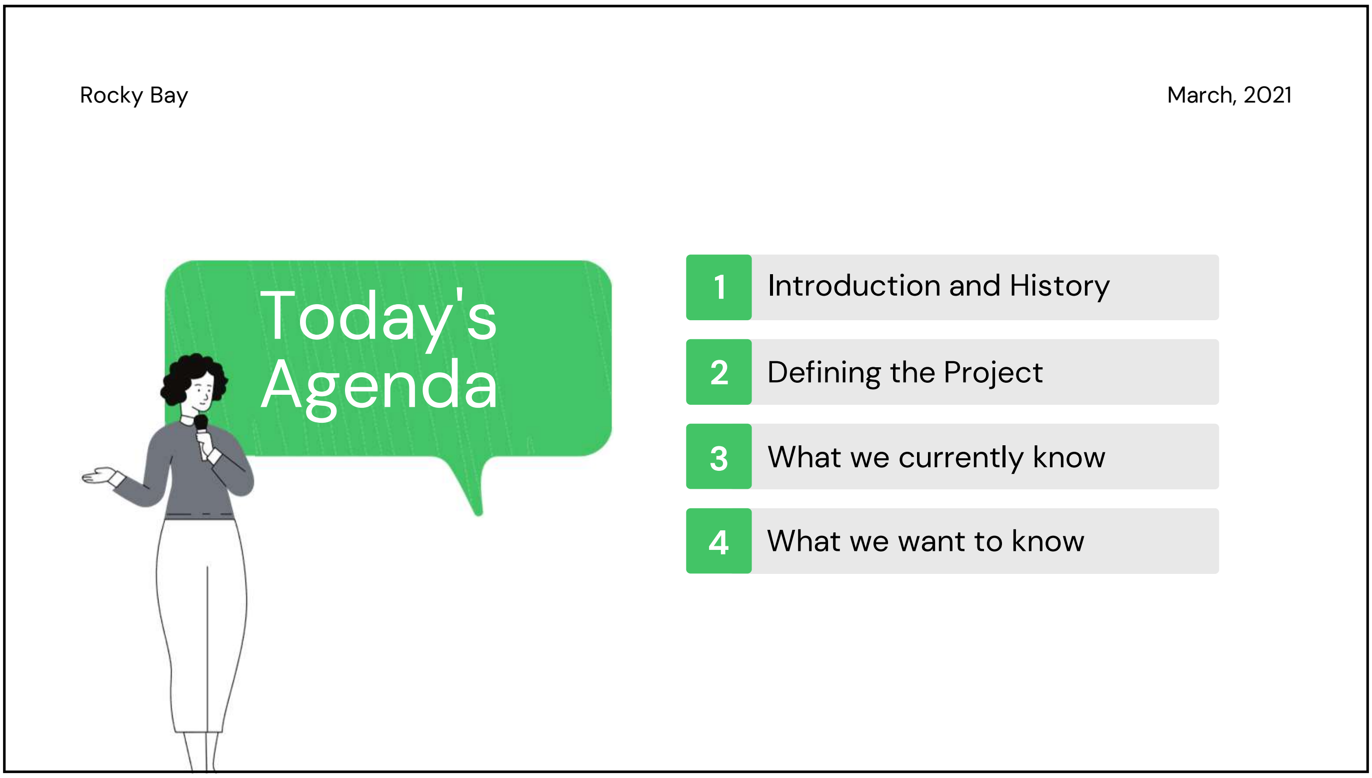
Appendix 1: Telepractice Steering Committee Reflection Questions

Rocky Bay

March, 2021

Telepractice Project

Let's reflect on what went well and what did not go well, and how we can do better in the future



Rocky Bay

March, 2021

Today's Agenda

1. Introduction and History
2. Defining the Project
3. What we currently know
4. What we want to know

Rocky Bay

March, 2021

Introduction

Michelle and Suzanne

Describing where the origins of the telepractice collaboration between Rocky Bay and Curtin University.

Defining the Project

Teletherapy

What was originally chosen

What makes sense to clinicians

limited in it's application

Therapy via videocall

Telehealth

Technology used to enhance health care, public health and health education delivery and support'

treating sickness with healthcare?

Maybe too acute care?

Most well known

Telepractice

encompassing the use of technology to deliver services across a variety of fields and disciplines such as early intervention, education and therapeutic support.

broad and inclusive

often framed as an opportunity for more equitable distribution of health care and social interventions

Telecare ✗

Telemedicine ✗

eHealth ✗

etc.

Rocky Bay

March, 2021

Steering Committee

Governance and Terms of Reference

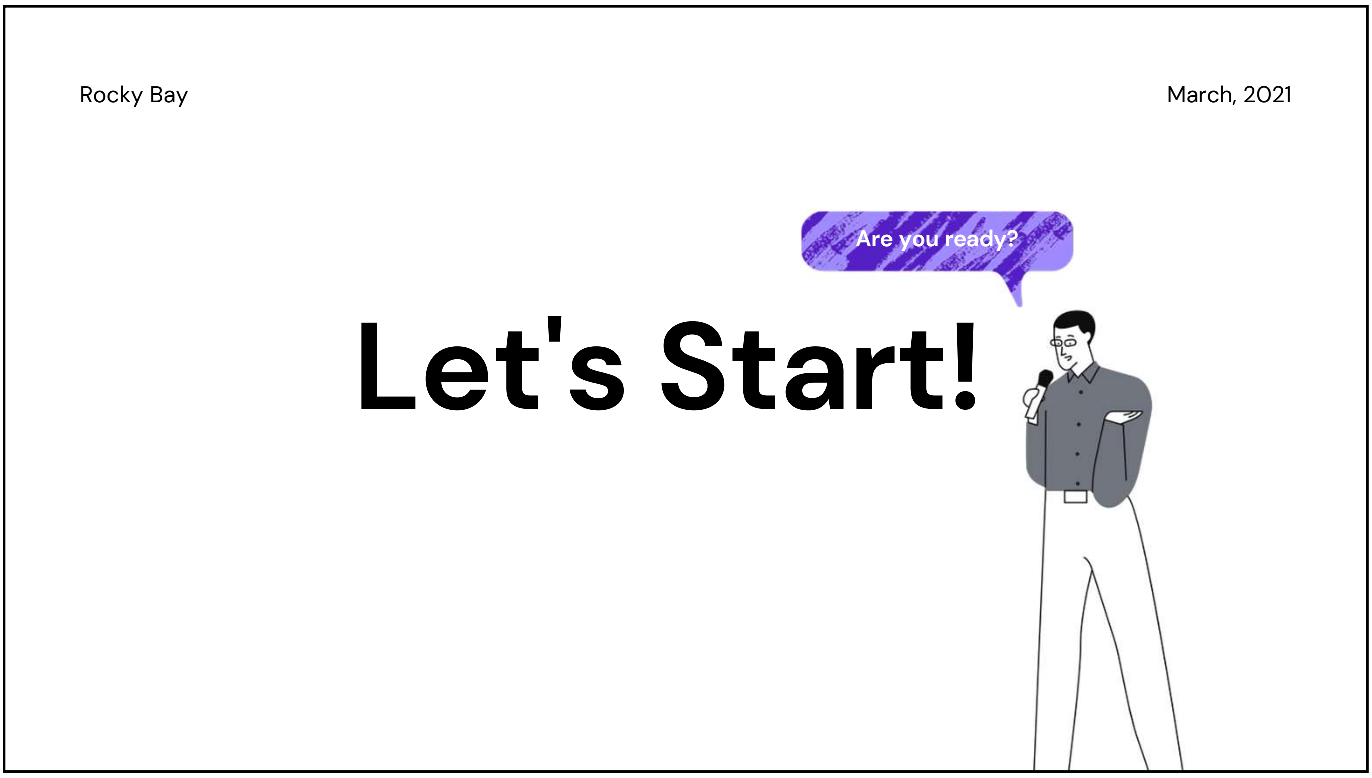
1. Responsible for oversite of the project up to completion
2. Reports to the Rocky Bay Executive and Curtin Research Advisors
3. Chairperson Michelle Dillon

Rocky Bay

March, 2021

> **“…this pandemic has offered us the largest natural trial of technological tools. We need to take the opportunity to gather evidence to optimize this kind of health care beyond COVID-19”**

Kendall et all, 2020

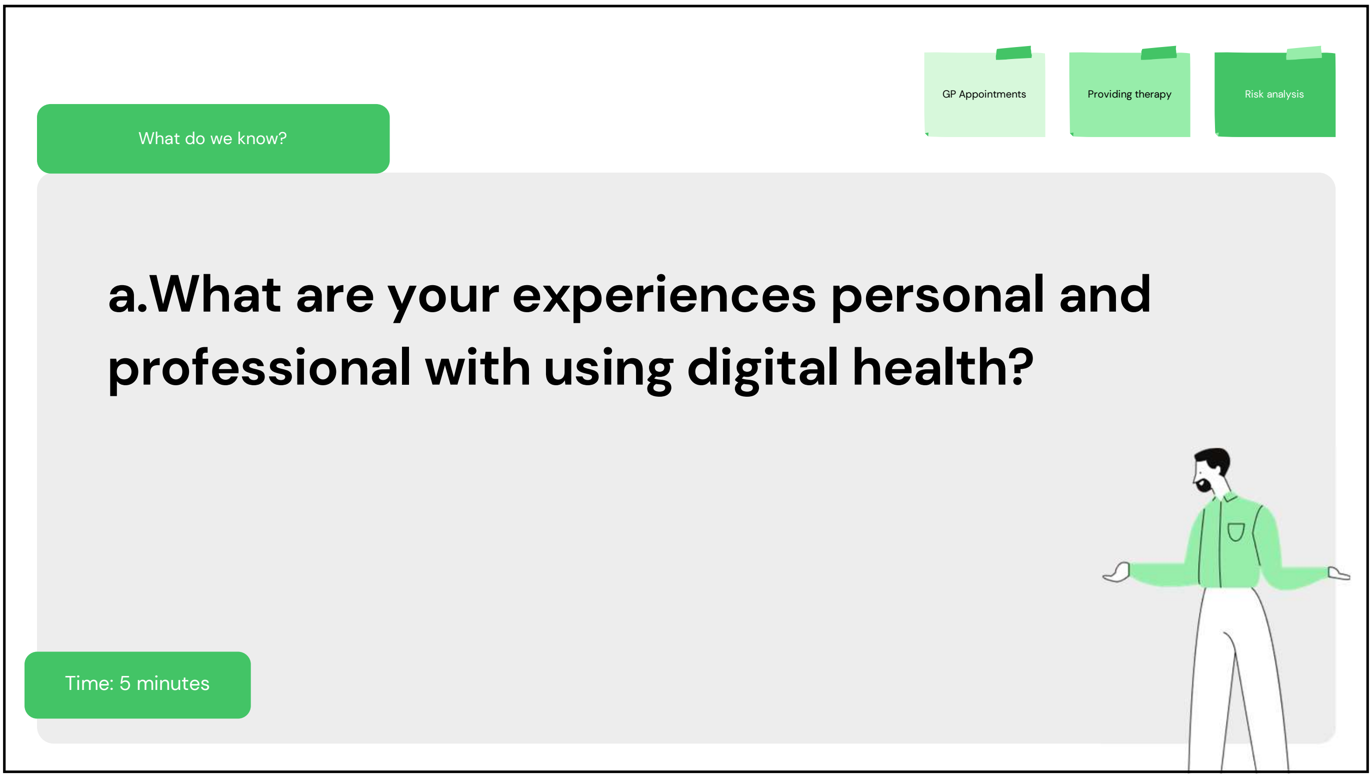


Rocky Bay

March, 2021

Let's Start!

7



GP Appointments

Providing therapy

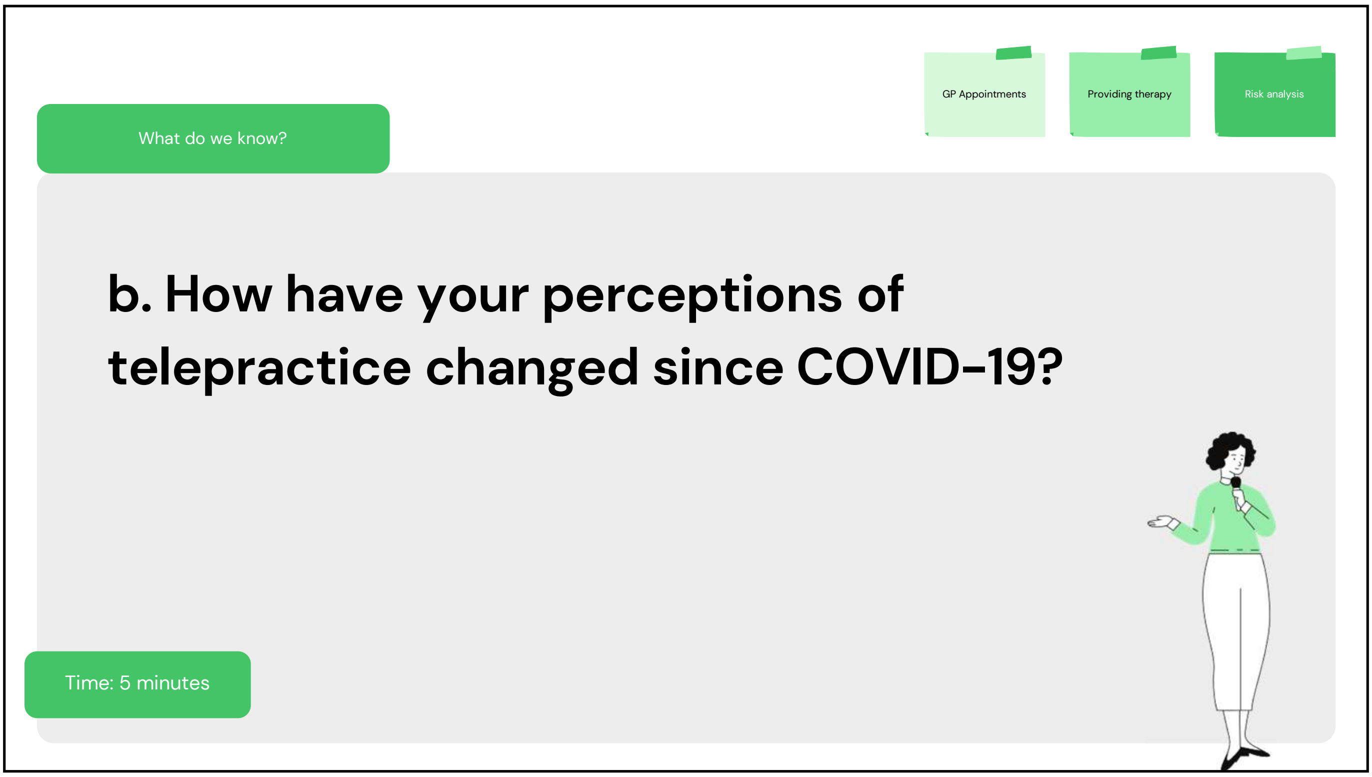
Risk analysis

What do we know?

a.What are your experiences personal and professional with using digital health?

Time: 5 minutes

8



GP Appointments

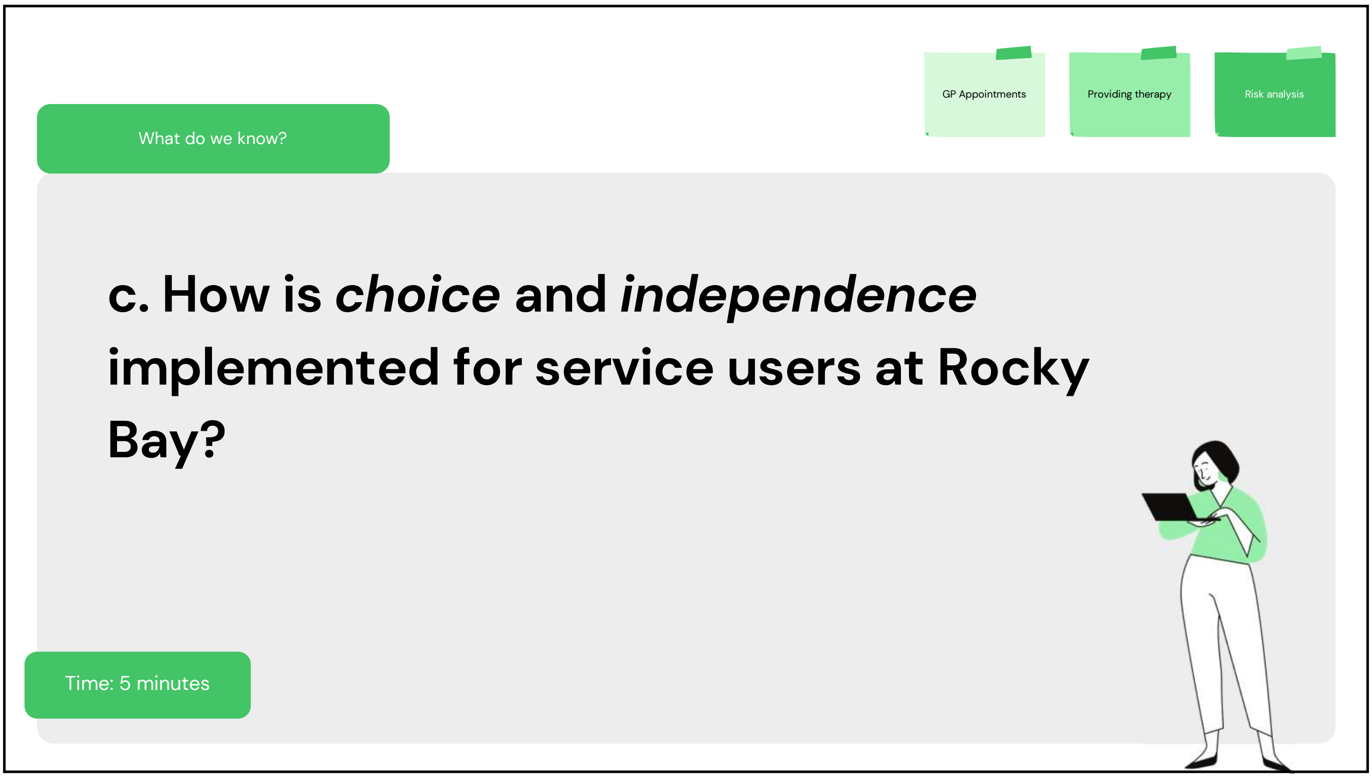
Providing therapy

Risk analysis

What do we know?

b. How have your perceptions of telepractice changed since COVID-19?

Time: 5 minutes



GP Appointments

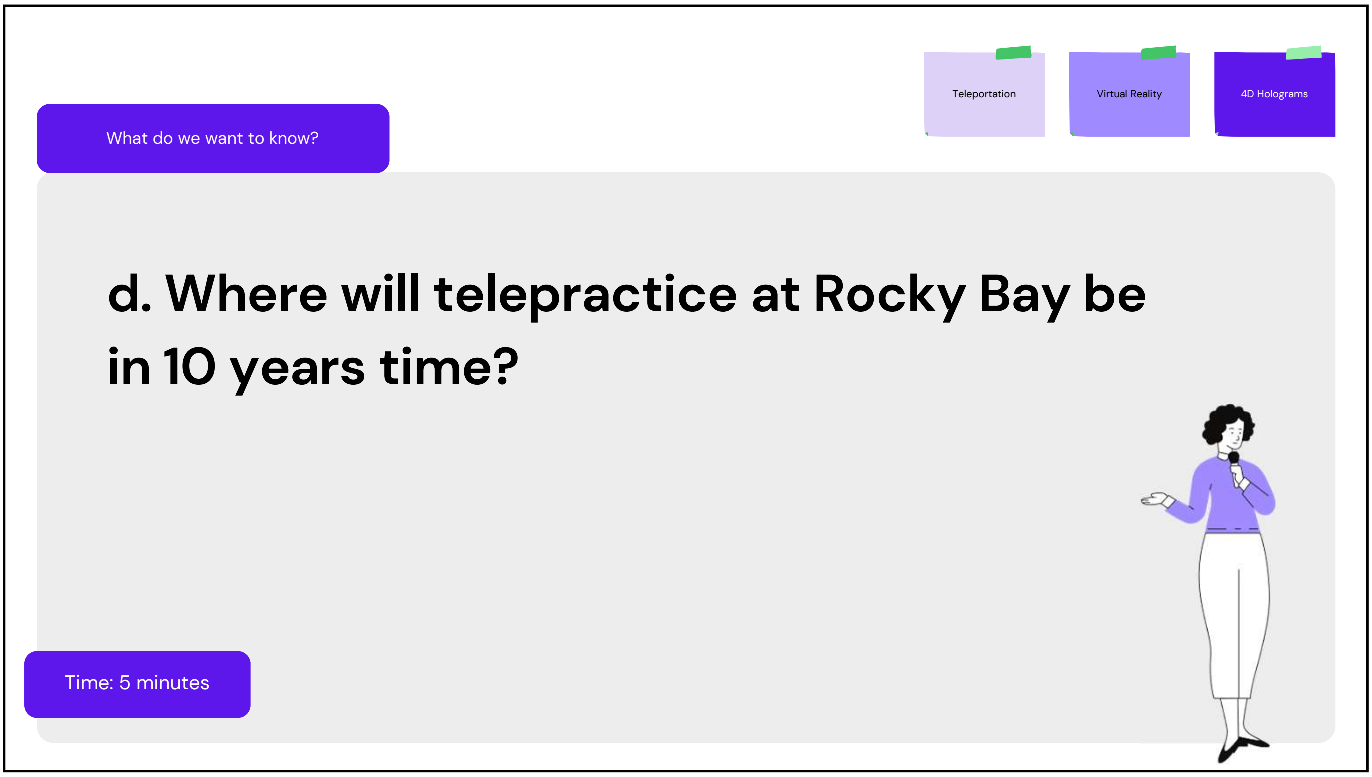
Providing therapy

Risk analysis

What do we know?

c. How is *choice* and *independence* implemented for service users at Rocky Bay?

Time: 5 minutes



Teleportation

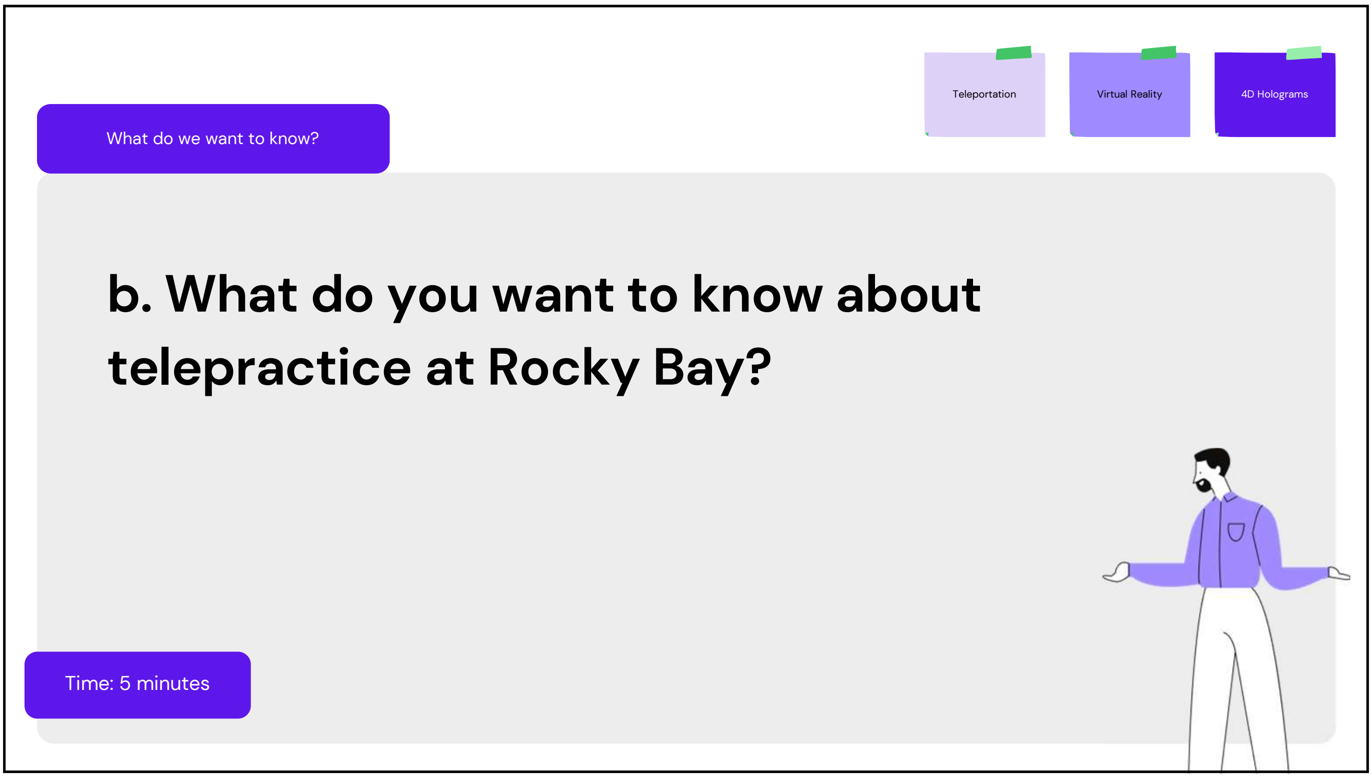
Virtual Reality

4D Holograms

What do we want to know?

d. Where will telepractice at Rocky Bay be in 10 years time?

Time: 5 minutes



Teleportation

Virtual Reality

4D Holograms

What do we want to know?

b. What do you want to know about telepractice at Rocky Bay?

Time: 5 minutes

Teleportation

Virtual Reality

4D Holograms

What do we want to know?

b. What do we want this project to say to Customers and the wider Disability Sector?

Time: 5 minutes

Rocky Bay

March, 2021

We're done!

Thank you for participating. Have a great day ahead.

Appendix 2: Peer researcher expression of interest and candidate interview questions

Rocky Bay
HEALTH + COMMUNITY

Expression of Interest

S.T.E.P Team have been working closely with Rocky Bay Innovation and Special Projects team to develop an opportunity to work as a

Peer Researcher

on a Research Project with our PhD Student.

The role will involve facilitating small group discussions, conducting scripted interviews to customers about Telehealth, some basic data entry and working with the Research Team. Listening skills are essential!

The Research project is aimed at gathering information from young individuals with disabilities BY young individuals with a disability.

If these are skills that you have and/or would like to improve on, we would love to hear from you.

Criteria:

Location: Mosman Park – Tuesday

With ability to work at alternate Hub 1 other day per week.

Duration: 12 months

Paid position

Willingness to comply with RB Induction Process inc. Covid Vax

The Process:

Register your interest by completing an Expression of Interest inclusive of your availability by emailing both;

savanaha.scott-pitt@rockybay.org & penny.bickford@rockybay.org

Appendix 3: Focus Group Information Booklet

ROCKY BAY TELEPRACTICE RESEARCH PROJECT

NOVEMBER 2022

TELEPRACTICE FOCUS GROUP SUMMARY

PREPARED AND PRESENTED BY

CLOE BENZ & WILL SCOTT-JEFFS

WHAT IS THIS SUMMARY?

This summary is aimed at helping you start to understand and become familiar with the concepts and ideas we will discuss in the focus group.

These concepts are shown as images and describe ideas and experiences from customers and staff which we heard in the interviews. They only describe some of the big ideas as a summary, not everything we heard (which we will continue to use later on).

PROJECT DESCRIPTION

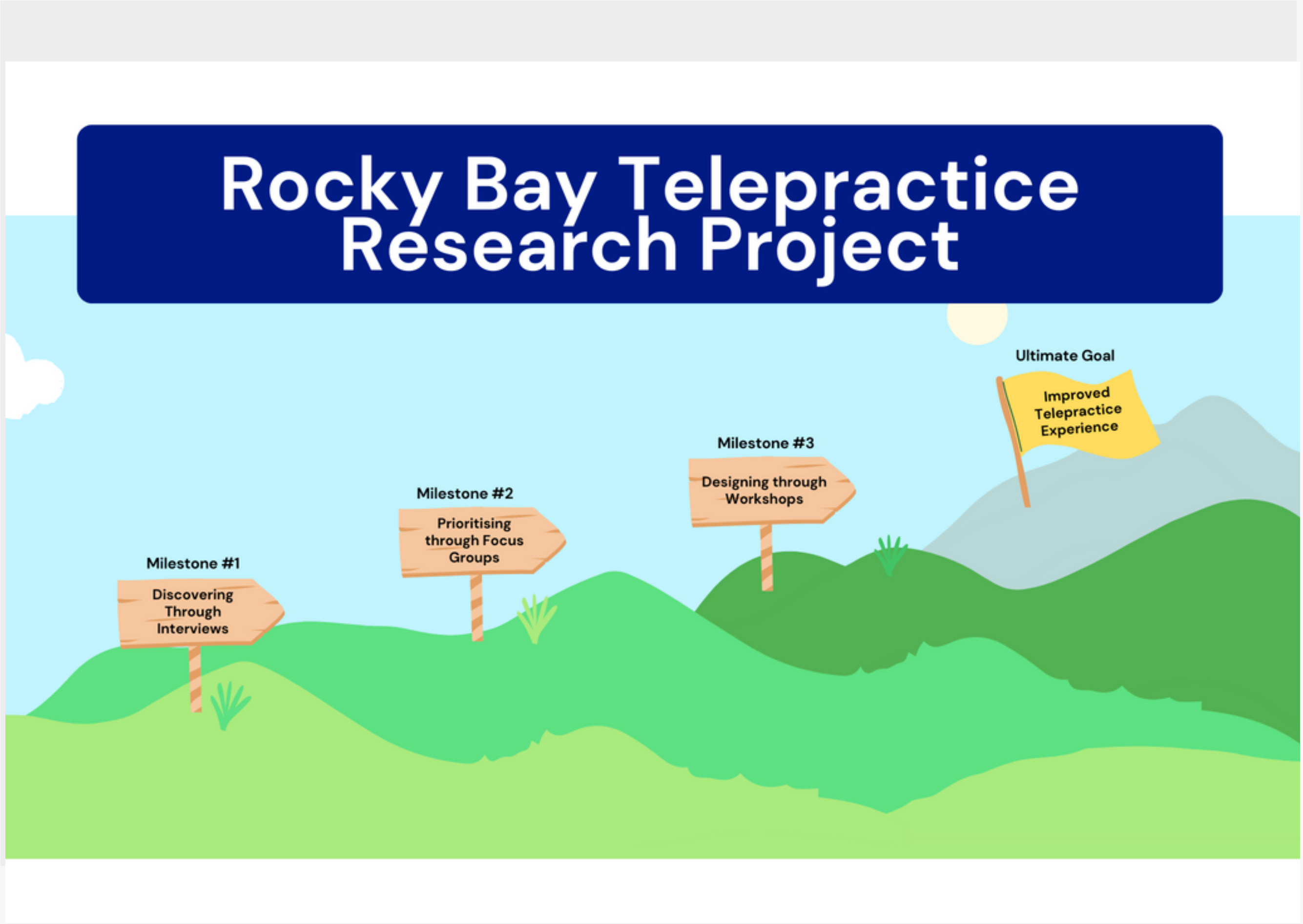
There are four milestones to this telepractice research project including:

- The first milestone is one that allows us to discover ways to use telepractice via interviews with clients and staff to enable a better experience.

- The second milestone is one that is prioritising the information gathered through the interviews and Focus Groups.

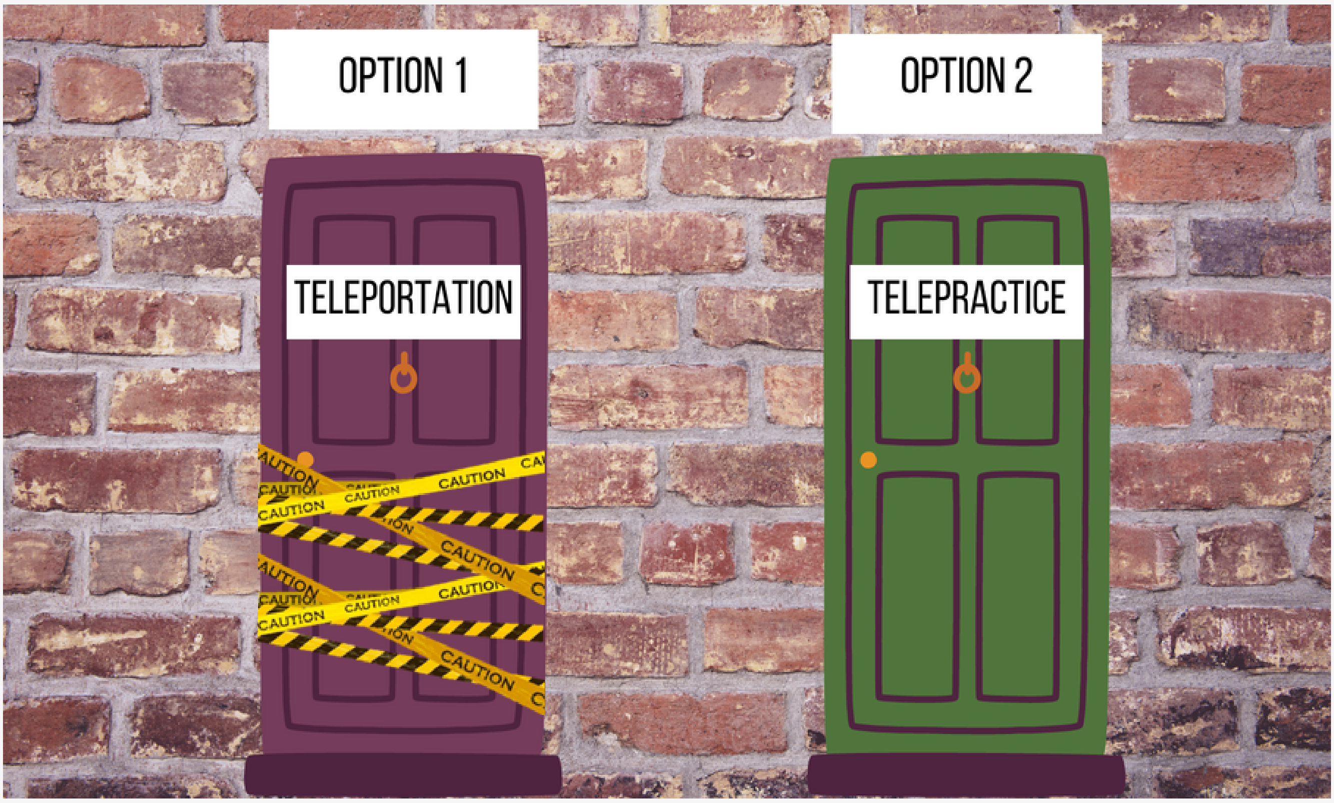
- The third milestone is one that includes the participants and takes their input into the design of what telepractice should look like.

- The final milestone is also the ultimate goal which is improved telepractice experience for everyone as a whole.



THE DOUBLE DOOR IMAGE

This image thinks about why people choose to use Telepractice



We have heard from participants that they mostly preferred face to face therapy and the best way of accessing services would be through a teleportation door. This door would allow people to appear at their therapy services with no travel or fatigue etc.

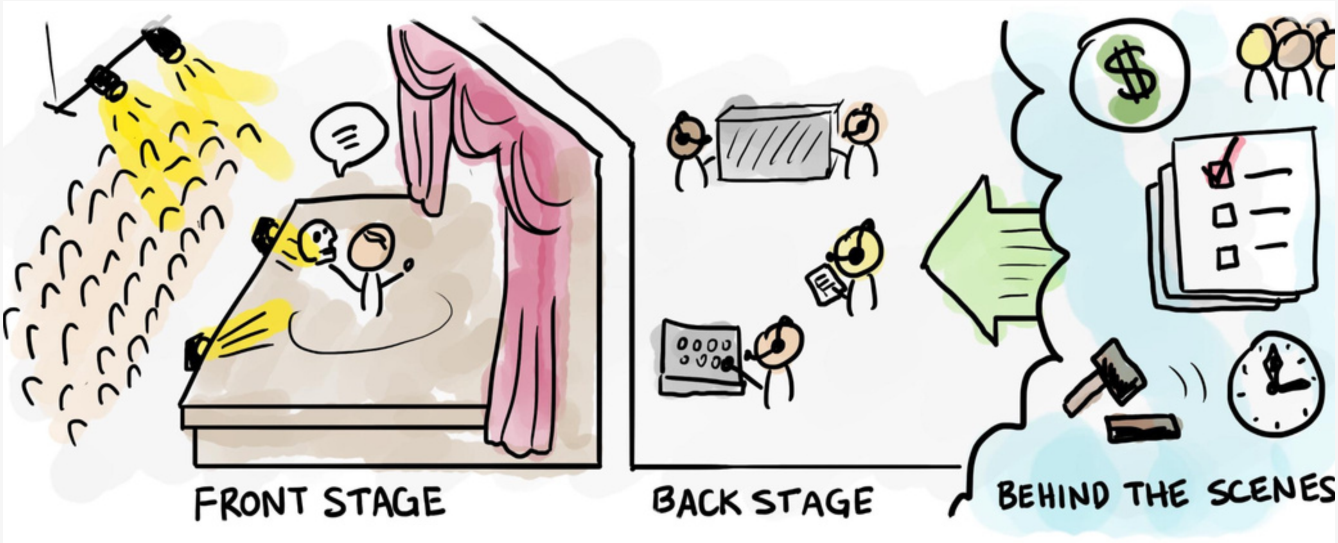
Unfortunately, this door is out of order and participants would choose telepractice sometimes as a good alternative.

"I probably hadn't given it too much thought. I didn't think it was something that I would ever choose to do."
Customer

"I'd rather spend half an our on a laptop or tablet than loosing $127 an hour its costing them (for a cancellation"
Clinician

THEATRE STAGE IMAGE

This Image thinks about all the parts required for a successful telepractice session



This picture demonstrates the structure for a successful telepractice session. The participants only see the front stage of the project which is the telepractice sessions and the backstage is what happens behind the scenes to manage telepractice sessions. We as a project need to think about and understand the other work that goes on in the background of the sessions. It is important for all parts of the process to be identified and work together to make it running smoothly.

"they'll be sent a pre-assessment questionnaire as complete which sometimes comes back , sometimes doesn't"
Clinician

"It depends on a bunch of other bits and pieces between the family, the student, the teacher, the therapist, everybody involved...teletherapy is a viable option, I would definitely recommend it"
Teacher of Customer

EXPECTATION VS REALITY IMAGE

This image thinks about what people expect before telepractice and how they feel after.

"before I tried it I was like 'how am I supposed to do this interactive therapy session with someone over video? that's never going to work"
Clinician

"I wasn't positive…I thought that it wouldn't be practical… but then I'm very comfortable using it now"
Carer of customer

This picture demonstrates feedback we have received about the expectation versus reality that participants have of telepractice.

People generally have expectations of things being easy, but in reality it can be a difficult path. Participants have thought the opposite for telepractice and it caused anxiety for some participants due to expectations. In reality, participants have found it to be an easy experience and not what they expected.

A participant has said, "I was very anxious about it…that preconceived notion and then it turns out to be completely different".

MAIL IN THE CHIMNEY IMAGE

This image thinks about how customers access MS Teams

Feeling of a million emails and links to MS Teams. How to you find the one you need?

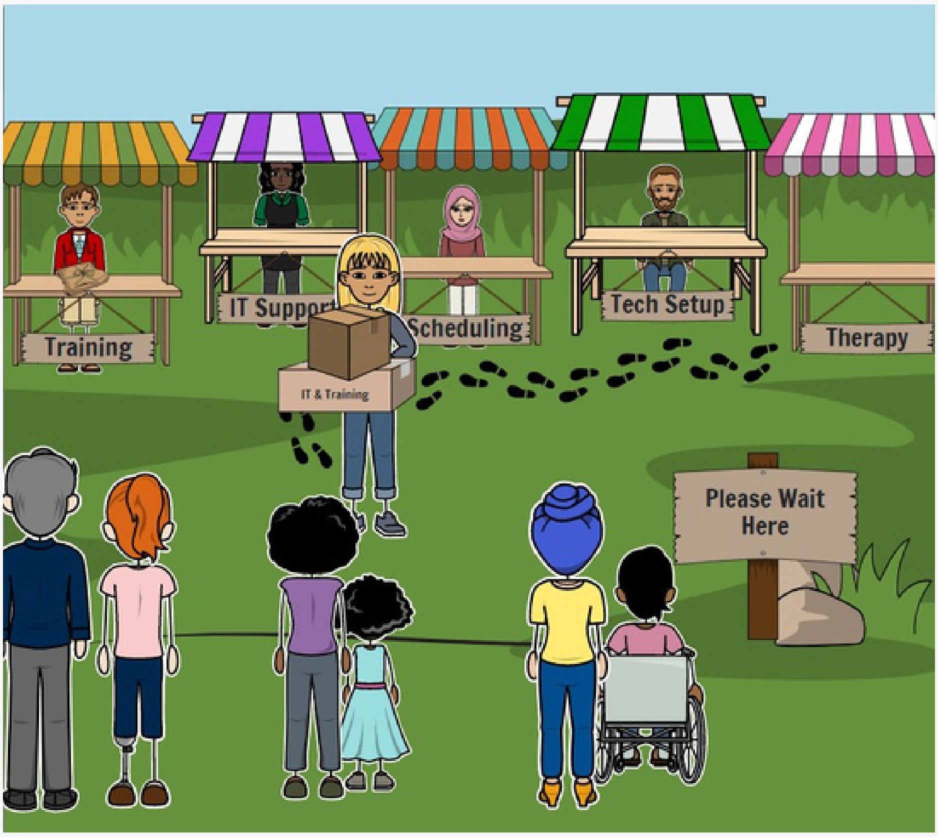
We have heard from participants that they feel like they have received a lot of emails and links to Microsoft Teams sessions. Participants have said that they feel overwhelmed from the amount of emails and links.

Participants have also said they are confused on which email link to click on and that the desired email can be easily missed. A participant has said, “because of the emails... scroll and you quite easily miss it because you don't see the title".

"I’ve probably got 100 MS teams links sitting in my inbox and I don’t even know which ones to click sometimes."
Customer

MARKET STALLS IMAGE

This image thinks about connections between different departments and how they work (or don't) with customers.



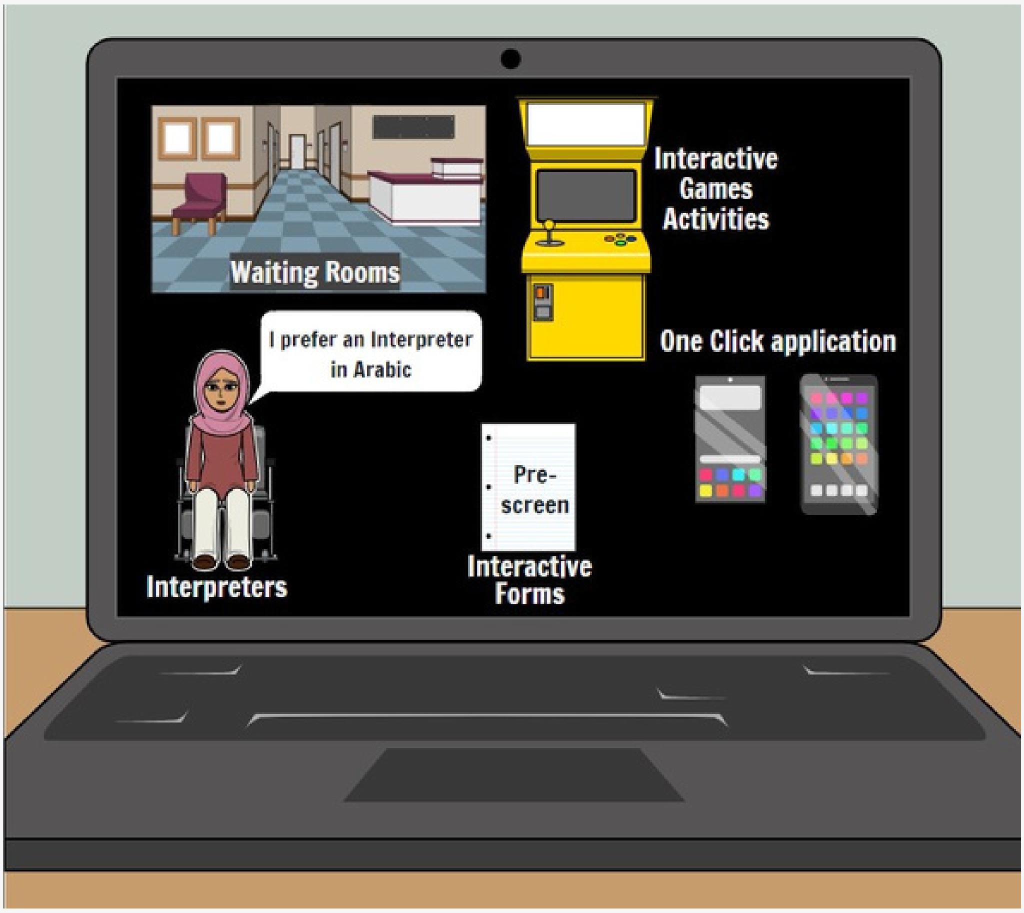
This picture describes a situation where clinicians have reported feeling the technological burden of telepractice has fallen to them. Potentially through a lack of clarity in staff roles or through a lack of pathways for customers to interact directly with other Rocky Bay departments has resulted in therapist functioning as a "go-between" reducing time spent on therapy and increasing the difficulty of using telepractice.

"But if I was to actually sit down and think about it, the amount of indirect training that I've provided to the older clientele, there's a lot of waste of my time"
Clinician

"I've found more recently the schedulers will say I need to send the link.. so I've got to remember to do that as well."
Clinician

PLATFORM FEATURE OPTIONS IMAGE

This image thinks about what people would like as features on the telepractice platform



The last image symbolise what features could potentially be available on a platform for telepractice users. The laptop shows five features that are currently available on different platforms.

An activity that will be run includes using hypothetical money to buy your preferred features from the picture. We will explain what each feature might provide to users and you will be given 10 virtual dollars to spend on the features you would like; you can spend more on your preferred features.

This will help to guide how the project proposes the new telepractice will look.

THE END

These pictures will all be expanded upon and further explained during the session and if you have any questions about them, they can be answered.

Appendix 4: Visualising Findings in the Co-Design of Telepractice Publication

MEDINFO 2023 — The Future Is Accessible
J. Bichel-Findlay et al. (Eds.)

doi:10.3233/SHTI231273

Visualising Findings in the Co-Design of Telepractice for the Disability Community

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[a]*School of Population Health, Curtin University, Australia*
[b]*Rocky Bay, Australia*
[c]*Deakin Health Economics, Institute for Health Transformation, Deakin University, Australia*
[d]*Beyond Sticky Notes, Australia*
ORCiD ID: Cloe Benz https://orcid.org/0000-0001-6950-8855

Abstract. The methods and strategies utilised to facilitate focus group discussion within a co-design context have a fundamental impact on the opportunity for participants to actively engage with the content. This is a description of the strategies our project utilized including visual prompts and preparation guide to assist both service users and staff participants facilitate access to concepts discussed within our focus group sessions.

Keywords. Methods, qualitative research, citizen co-design, capacity building

1. Introduction

To gain genuine thoughts and responses, an issue particularly pertinent when working with people with disability, accessibility and inclusively must be prioritised to support equity and participation for all in a safe and respectful way [1]. The disability community is a diverse population and inclusive of all other minority groups [2]. Services including allied health, nursing, and others are accessed to respond to a heterogeneity of experiences and needs of people with disability and a myriad of therapy interventions are accessed and delivered both in person and via telepractice. The broad project aim was to co-design with people with disability & clinicians, a telepractice delivery pathway for partner organisation, Rocky Bay, a not-for-profit disability support provider in Perth, Australia. The current objective explored the challenge of communicating synthesised experiences collected during individual interviews to service users with disability (or carers) & clinicians during focus groups.

2. Methods

Study participants consisted of service users and staff of Rocky Bay, who initially completed an individual interview and were invited to a focus group to reflect on and

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[1] Corresponding Author: Cloe Benz, email: cloe.benz@curtin.edu.au

discuss the synthesised interview findings. Focus groups were held on three consecutive days in Nov, 2022, hosted via MS Teams. Service users and clinician groups were held separately to support a comfortable environment with their peers. Three strategies were used to facilitate accessibility of the focus group sessions; firstly, flexible scheduling where participants were provided options and were asked to provide preferences. Secondly a strategy was an introduction video and information booklet provided one week prior to enable preparation if participants desired. Both resources were prepared and voiced by the peer researcher on the project (WSJ) to ensure that the information was genuinely voiced by people from the community for the community.The third strategy involved visual metaphors to represent themes and describe abstract concepts in physical terms to increase accessibility. Two of five metaphors used in the focus groups are shown in Figure 1, image (a) portrays the idea of choice, with most participants preferring to choose face to face but providing the caveat that they would prefer less time, money and energy wasted on travel, as would occur if teleportation existed. Unfortunately, teleportation does not yet exist and therefore telepractice is a good alternate option when specifics such as travel time, therapy budget, health concerns etc. make face to face impractical. Image (b) depicts the expectations versus reality of experiencing telepractice sessions. The prompt was to assist participants in thinking about the path taken to a telepractice session, with mixed messages as to which part of the image would represent the expectations vs. reality. The main impression was participants did not feel expectations matched with reality.

Figure 1. (a) Double Door Metaphor, making meaning of motivation for telepractice uptake and (b) Expectation vs reality of telepractice session as a visual representation.

Detailed auditory description of the visual material was utilised to accommodate one attendee with visual impairment, followed by a prompt question and opportunity for participants to respond their thoughts and feelings, and discuss within the group.

3. Results

Eight of ten service users who consented, attended a focus group, six of eight agreeing to continue to participate in the project. All available clinicians completed a focus group (11/12, 1 on personal leave), with managers the lowest attendees (3 of 6). Of 26 participants who consented across four groups, 22 attended, potentially supporting the use inclusion strategies. All five visual prompts were received positive feedback by both cohorts and enabled active discussion of the concept being portrayed through the images, with all participants in each focus group completing each activity or prompt.

4. Conclusions

The strategies employed throughout the focus groups ensured the content was accessible and equitable across all participants which empowered them to feel able to contribute.

References

[1] Australian Healthcare and Hospitals Association and Consumers Health Forum of Australia. Experience based co-design: toolkit. In: Consumers Health Forum of Australia. Canberra; 2018.

[2] Benz C, Norman R, Hendrie D, Welsh M, Huntley M, Robinson S. Use of teletherapy for allied health interventions in community-based disability services: a scoping review of user perspectives. Health Soc Care Community. 2022 Nov;30(6):e3265-6729, doi: 10.1111/hsc.14105.

Appendix 5: Informational Video YouTube Links

Links from YouTube

Telepractice in Disability: Participant Short Video

https://www.youtube.com/watch?v=x9-w8gMhfmY&list=PLw7s82DvAKog-Fl-1xKTQrRdvBSPWTKjK&index=1

Telepractice in Disability: Participant Information Statement Video
https://www.youtube.com/watch?v=NhWEgVdwqSs&list=PLw7s82DvAKog-Fl-1xKTQrRdvBSPWTKjK&index=2

Telepractice Focus Group Intro Video
https://www.youtube.com/watch?v=L_sihS4lW0Y&list=PLw7s82DvAKog-Fl-1xKTQrRdvBSPWTKjK&index=3

Telepractice Workshop Info Video

https://www.youtube.com/watch?v=lo2rX7UWffg&list=PLw7s82DvAKog-Fl-1xKTQrRdvBSPWTKjK&index=5

Rocky Bay Microsoft Teams Tutorial

https://www.youtube.com/watch?v=JmzY6JYKY9g&list=PLw7s82DvAKog-Fl-1xKTQrRdvBSPWTKjK&index=4

Telepractice Prototype Staff Version with QR code

https://www.youtube.com/watch?v=qascuv5jPdQ&list=PLw7s82DvAKog-Fl-1xKTQrRdvBSPWTKjK&index=8

Telepractice Prototype Customer Version

https://www.youtube.com/watch?v=bAyLA6wiPM4&list=PLw7s82DvAKog-Fl-1xKTQrRdvBSPWTKjK&index=9

Appendix 6: Full Page Infographic Summary Series

Co-Designing Telepractice within the Disability Sector

Telepractice is a **convenient way** to deliver services via videocall to customers. Telepractice **improves ease of access** for people with a disability. This project partners with members of the disability community to design a **fit for purpose** Telepractice service that enhances choice and flexibility while delivering high quality services.

Design Process

1. Survey the Australian Disability Sectors use of Telepractice
2. Co-design a new Telepractice service model
3. Prototype & Test the Telepractice model with Rocky Bay
4. Gather feedback to improve & expand Telepractice for Implementation

How is this project inclusive?

People with a disability will actively participate in designing the service they use.

Clinicians partnering with clients to develop high quality solutions to deliver care in the best way.

Australian Disability Sector sharing information to collectively improve service quality & sustainability.

Research team includes members with a disability enabling learning & inclusivity.

> It saves on travel, it saves on fatigue, you can do it from the comfort of your own home … it is just as good as face to face for us.
>
> Parent of Telepractice Service User

1 in 3 People surveyed who accessed NDIS therapy via videocall during COVID-19 lockdowns said they would keep using telepractice.
(Lawford et al. 2021)

Who to contact to be involved?

Curtin University and Rocky Bay are conducting this project, to find out more or be involved please contact Project Coordinator Cloe Benz cloe.benz@rockybay.org.au or discuss with your Rocky Bay Therapist.

Lawford et al. Participant Experiences with National Disability Insurance Scheme Funded Allied Healthcare Services During COVID-19 Melbourne, Australia: A report prepared by The University of Melbourne in collaboration with the National Disability Insurance Agency with funding from the Melbourne Disability Institute; 2021.

Rocky Bay HEALTH + COMMUNITY

Curtin University

Telepractice Research Project
A Summary of publications on Telepractice User Experiences

This is a **graphic summary** of an article which looked at what other researchers have published about experiences using telepractice for therapy in disability services. The article is part of the **Telepractice Research Project** between Rocky Bay and Curtin University.

What we looked for:

Research Articles published in the last 5 years describing customer and clinician experiences of using telepractice (videocall) for disability based therapy interventions (physio, OT, speech etc.)

Where we looked:

Searched in 5 online libraries

What we found:

1365 results

22 articles included

Findings

We **split the information** we analysed into two categories, the first was things that impact **the people** trying to use telepractice, and the second was things that impact **the organisation** introducing telepractice.

Majority of customer experiences with telepractice are **positive**

Telepractice is viewed as a complementary way of delivering therapy in a **flexible hybrid model instead of a replacement** for face to face

Customers identified by using telepractice it **decreased stress and** increased their capacity to engage and participate in sessions

Telepractice delivery is best suited to a **coaching style** of therapy intervention strategy

Preconceptions of customers and clinicians do **not align** with actual experience

Customers may **not be offered** telepractice or **refuse** due to assumptions about telepractice that are often unfounded

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More information is available in the full article, to find the article online and in PDF follow the QR code or type the DOI link (below) into your internet browser, if you have any questions feel free to email cloe.benz@rockybay.org.au.

Benz, C., Norman, R., Hendrie, D., Welsh, M., Huntley, M., & Robinson, S. (2022). Use of Teletherapy for allied health interventions in community-based disability services: A scoping review of user perspectives. Health & Social Care in the Community, 00, 1–15. https://doi.org/10.1111/hsc.14105

Rocky Bay
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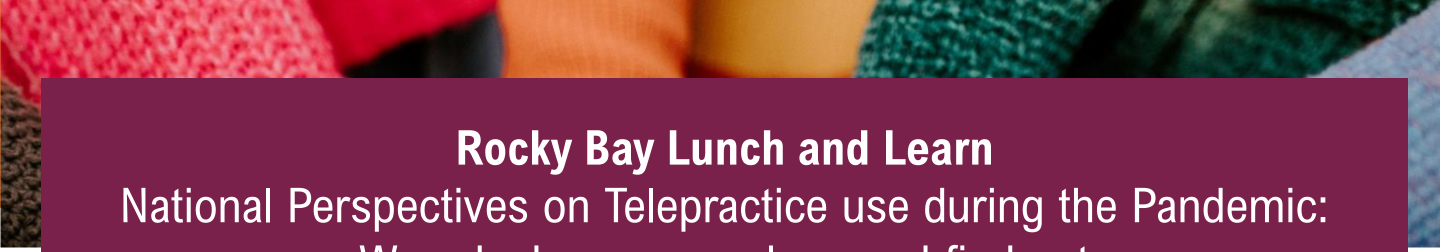


Rocky Bay Lunch and Learn
National Perspectives on Telepractice use during the Pandemic: We asked, so come along and find out

Telepractice

defined as " the application of telecommunications technology to deliver clinical services at a distance by linking clinician to client, caregiver or any person(s) responsible for delivering care to the client for the purposes of assessment, intervention, consultation and/or supervision."

Aim & Method

Aim: “What were the experiences of Allied Health Clinicians and Managers of Telepractice, in the context of providing services to people with disability post the onset of COVID-19?”

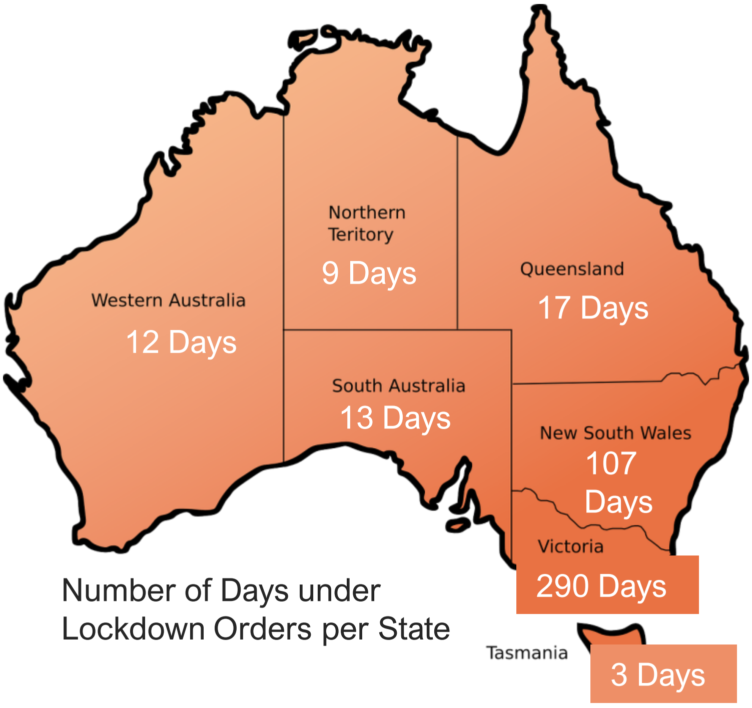
Method

- 7 Disability Organisations
- 13 Manager & Clinician
- Representing All States
- 60 min Interviews
- Nov 2021 – Feb 2022

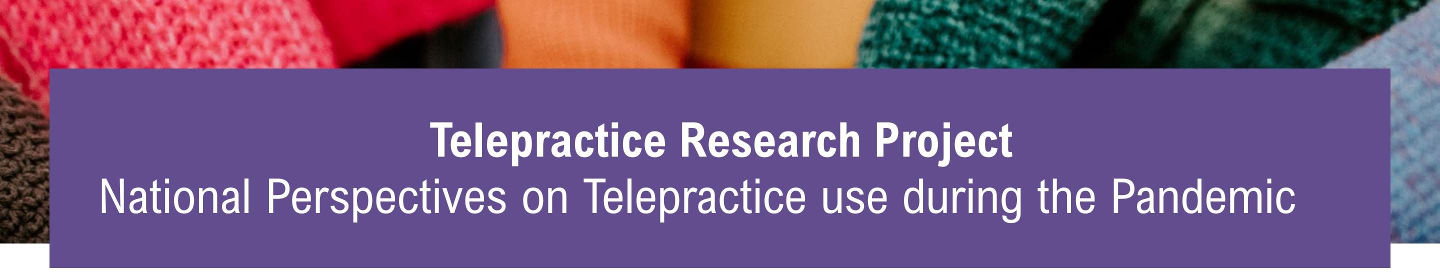
Data Analysis

- Transcribed verbatim
- Analysed in Nvivo
- Second reviewer for Reliability
- Consolidated Framework for Implementation Research
- Thematic Analysis Methodology by Braun & Clarke (2006)

Each **Australian State** spent different periods of time under lockdown conditions and each **Disability Organisation** responded differently to those challenges, creating a **wealth of knowledge** to explore.



Number of Days under Lockdown Orders per State



Telepractice Research Project
National Perspectives on Telepractice use during the Pandemic

This is a **graphic summary** of an article which looked how allied health clinicians and clinical department managers of Disability support service organisations around Australia experienced using telepractice during the COVID pandemic. The article is part of the **Telepractice Research Project** between Rocky Bay and Curtin University.

Telepractice is accessing and providing clinical services via telecommunications (video) technology.

What we looked for:

> "What were the experiences of Allied Health Clinicians and Managers of Telepractice, in the context of providing services to people with disability post the onset of COVID-19?"

Where we looked:

abilityfirst AUSTRALIA
7 Disability Organisations

13 Managers & Clinicians

Representing All States

60 min Interviews

Nov 2021 – Feb 2022

What we found:

We described the findings with **the metaphor of creating a diamond**, this was a way of structuring understanding of participant experiences in comparison to a physical visual.

- The pressure caused by COVID-19 changed services to include telepractice as pressure changes carbon to diamond.
- It is important to invest in the time needed to create something valuable like a diamond or quality telepractice service.
- Each states experienced the pandemic differently & those with longer outbreaks were more likely to use telepractice.
- Telepractice was a silver lining of the pandemic creating something beautiful like a diamond.
- We can artificially create diamonds, & we need to learn how to create successful telepractice outside COVID.
- Diamonds are rarely used in isolation, equally telepractice was viewed as best suited in combined with in-person.

More information is available in the full article, to find the article online and in PDF follow the QR code or type the DOI link (below) into your internet browser, if you have any questions feel free to email cloe.benz@rockybay.org.au.

Benz, C, Dantas, J, Welsh, M, Norman, R, Hendrie, D, & Robinson, S. (2023). Telepractice implementation experiences during the COVID-19 Pandemic, a qualitative exploration of Australian Disability Allied Health Providers: A diamond in the rough. Digital Health, INSERT DOI

Curtin University Human Research Ethics Committee Approved (HRE2021-0731).

Rocky Bay HEALTH + COMMUNITY

Curtin University

Telepractice Research Project
National Perspectives on the Functionality of Telepractice

This is a **graphic summary** of an article which looked at what allied health clinicians and clinical department managers of Disability service organisations around Australia think about how functional and useful telepractice is for delivering and accessing therapy. The article is from the **Telepractice Research Project** between Rocky Bay and Curtin University.

Telepractice is accessing and providing clinical services via telecommunications (video) technology.

What we looked for:

"How functional and useful do Allied Health Clinicians and Managers think telepractice is to provide services to people with disability?"

Where we looked:

abilityfirst AUSTRALIA
7 Disability Organisations

13 Managers & Clinicians

Representing All States

60 min Interviews

Nov 2021 – Feb 2022

What we found: We described the findings like a pair of shoes, this was a way of structuring understanding of participant experiences in comparison to a physical visual.

We found the function of telepractice fits differently for each individual, just like pairs of shoes.

Allied Health Clinicians and Managers thought telepractice functioned best in addition to in-person sessions through a flexible hybrid delivery model.

Telepractice has its own strengths and weaknesses and isn't a substitute for in-person session, much like left and right shoes are similar, but not the same.

The flexibility of having both telepractice and in-person options could support the unique needs of individual people with disability instead of trying to make one size fit all.

Think of Telepractice as being different to in-person sessions just like left and right shoes!

More information is available in the full article, follow the QR code or type the DOI link (below) into your internet browser, if you have any questions about the research please email cloe.benz@curtin.edu.au.

Benz C, Dantas J, Welsh M, Norman R, Robinson S, Hendrie D. A qualitative study assessing allied health provider perceptions of telepractice functionality in therapy delivery for people with disability. Health Expectations. 2024;27(1):e13988. doi:https://doi.org/10.1111/hex.13988

Curtin University Human Research Ethics Committee Approved (HRE2021-0731).

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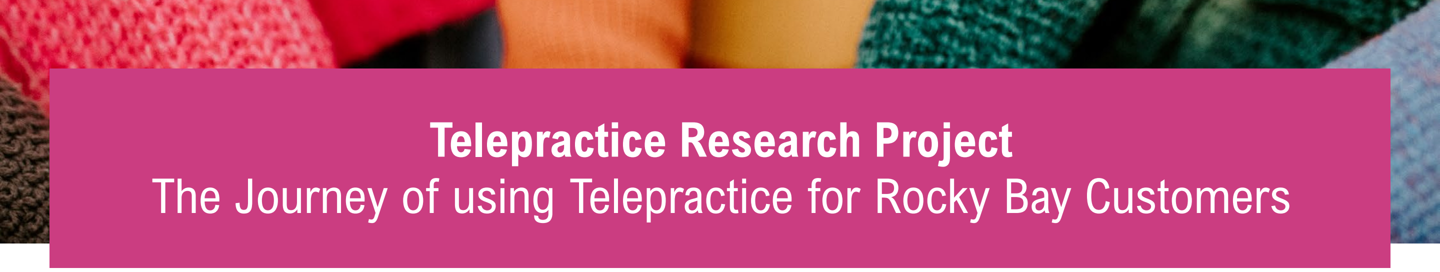


Telepractice Research Project
The Journey of using Telepractice for Rocky Bay Customers

This is a **graphic summary** of an article which looked at how customers of Rocky Bay experience using telepractice for accessing clinical services. The article is part of the **Telepractice Research Project** between Rocky Bay and Curtin University and was written in collaboration with 10 co-designers included 5 customers and 5 staff from Rocky Bay.

A **Journey Map** is a visual presentation of the steps a customer follows during all stages of a care episode and the person's emotional experience through this journey.

What we did:

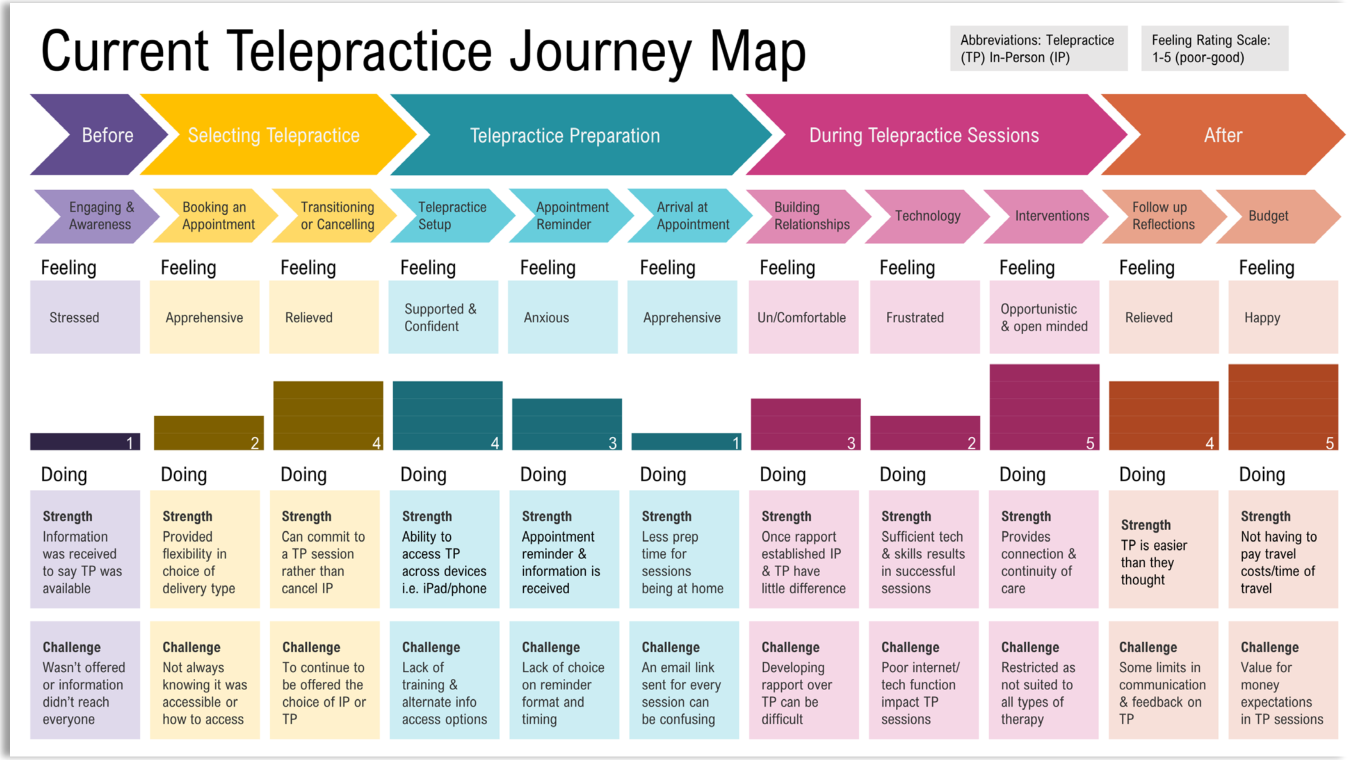
17 Customers & Carers

30 min Interviews

Aug - Nov 2022

10 Customer & Staff Co-designers created a Journey Map

What we found:



Current Telepractice Journey Map

Abbreviations: Telepractice (TP) In-Person (IP)

Feeling Rating Scale: 1-5 (poor-good)

	Before	Selecting Telepractice		Telepractice Preparation			During Telepractice Sessions			After	
	Engaging & Awareness	Booking an Appointment	Transitioning or Cancelling	Telepractice Setup	Appointment Reminder	Arrival at Appointment	Building Relationships	Technology	Interventions	Follow up Reflections	Budget
Feeling	Stressed	Apprehensive	Relieved	Supported & Confident	Anxious	Apprehensive	Un/Comfortable	Frustrated	Opportunistic & open minded	Relieved	Happy
	1	2	4	4	3	1	3	2	5	4	5
Doing	**Strength** Information was received to say TP was available	**Strength** Provided flexibility in choice of delivery type	**Strength** Can commit to a TP session rather than cancel IP	**Strength** Ability to access TP across devices i.e. iPad/phone	**Strength** Appointment reminder & information is received	**Strength** Less prep time for sessions being at home	**Strength** Once rapport established IP & TP have little difference	**Strength** Sufficient tech & skills results in successful sessions	**Strength** Provides connection & continuity of care	**Strength** TP is easier than they thought	**Strength** Not having to pay travel costs/time of travel
	Challenge Wasn't offered or information didn't reach everyone	**Challenge** Not always knowing it was accessible or how to access	**Challenge** To continue to be offered the choice of IP or TP	**Challenge** Lack of training & alternate info access options	**Challenge** Lack of choice on reminder format and timing	**Challenge** An email link sent for every session can be confusing	**Challenge** Developing rapport over TP can be difficult	**Challenge** Poor internet/ tech function impact TP sessions	**Challenge** Restricted as not suited to all types of therapy	**Challenge** Some limits in communication & feedback on TP	**Challenge** Value for money expectations in TP sessions

More information is available in the full article, follow the QR code or type the DOI link (below) into your internet browser, if you have any questions about the research please email cloe.benz@curtin.edu.au, and for Rocky Bay Telepractice email matthew.locantro@rockybay.org.au.

Benz C, Scott-Jeffs W, Revitt J, Brabon C, Fermanis C, Hawkes M, et al. Co-designing a telepractice journey map with disability customers and clinicians: Partnering with users to understand challenges from their perspective. Health Expectations. 2023;n/a(n/a) doi: https://doi.org/10.1111/hex.13919

Curtin University Human Research Ethics Committee Approved (HRE2021-0731).

Co-Designing Telepractice within the Disability Sector

Prototype Testing Survey Results

Telepractice is a convenient way to deliver services via videocall. The Telepractice Research Project Co-design group recently produced a storyboard prototype to test proposed ideas for a redevelopment of the current telepractice delivery model, which was provided to staff and customers with a survey questionnaire for feedback.

Prototype Survey Details

June – July 2023

Open to Rocky Bay Clinical Customers and Staff

Prototype Survey Participants

100 respondents

🟦 Staff

🟧 Customer

Results

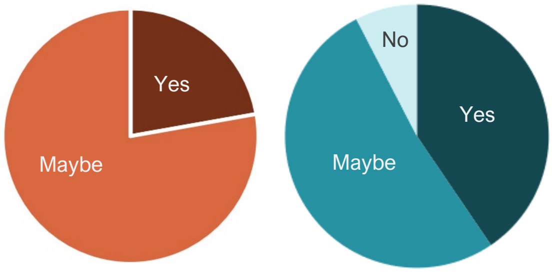
What element of future Telepractice excites you the most?

- Ease & Convenience
- Technical Support & Reliability
- Reduced Travel & Accessibility
- Continuity of Care

What component would be most impactful?

- Safety & Flexibility
- Technical Support & Security
- Cost & Time Savings
- Coaching & Empowering

Do participants see themselves using this telepractice as an option in the future?



Would future telepractice better meet participant needs than current telepractice?

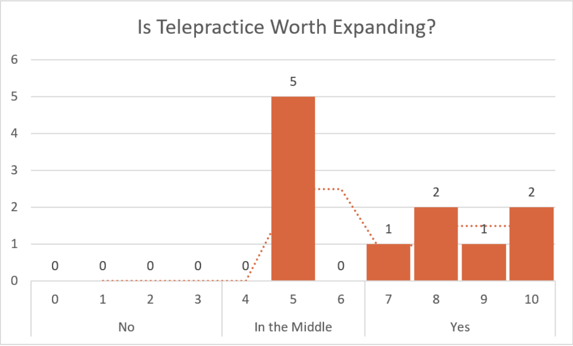
Example Uses:

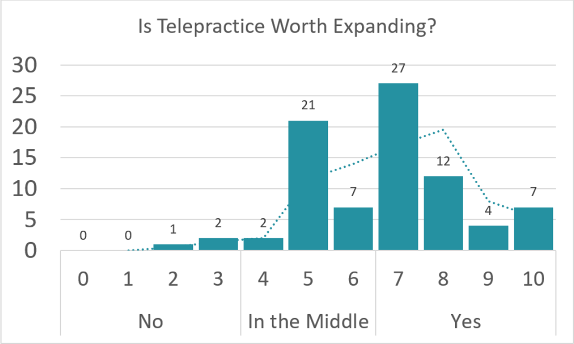
Customer

- When unwell
- When hands off therapy is required
- For Speech, Physio and Social Works Sessions

Staff

- Therapy Sessions
- Parent Coaching & Support
- Meetings & Consultations
- Customer Convenience





Curtin University Human Research Ethics Committee (HREC) has approved this study (HRE2021-0731).

Rocky Bay HEALTH + COMMUNITY

Curtin University

Appendix 7: Ethics Approval Letter

Curtin University

Research Office at Curtin

GPO Box U1987
Perth Western Australia 6845

Telephone +61 8 9266 7863
Facsimile +61 8 9266 3793
Web research.curtin.edu.au

21-Mar-2022

Name:	Richard Norman
Department/School:	Curtin University
Email:	Richard.Norman@curtin.edu.au

Dear Richard Norman

RE: Amendment approval
Approval number: HRE2021-0731

Thank you for submitting an amendment request to the Human Research Ethics Office for the project **Telepractice in the Disability Sector: An investigation of Implementation and Impact**.

Your amendment request has been reviewed and the review outcome is: **Approved**

The amendment approval number is HRE2021-0731-03 approved on 21-Mar-2022.

The following amendments were approved:
Addition of William Scott-Jeffs to the project team.

Condition of Approval
It is the responsibility of the Chief Investigator to ensure that any activity undertaken under this project adheres to the latest available advice from the Government or the University regarding COVID-19.

Any special conditions noted in the original approval letter still apply.

Standard conditions of approval

1. Research must be conducted according to the approved proposal
2. Report in a timely manner anything that might warrant review of ethical approval of the project including:
    - proposed changes to the approved proposal or conduct of the study
    - unanticipated problems that might affect continued ethical acceptability of the project
    - major deviations from the approved proposal and/or regulatory guidelines
    - serious adverse events
3. Amendments to the proposal must be approved by the Human Research Ethics Office before they are implemented (except where an amendment is undertaken to eliminate an immediate risk to participants)
4. An annual progress report must be submitted to the Human Research Ethics Office on or before the anniversary of approval and a completion report submitted on completion of the project
5. Personnel working on this project must be adequately qualified by education, training and experience for their role, or supervised
6. Personnel must disclose any actual or potential conflicts of interest, including any financial or other interest or affiliation, that bears on this project
7. Changes to personnel working on this project must be reported to the Human Research Ethics Office
8. Data and primary materials must be retained and stored in accordance with the Western Australian University Sector Disposal Authority (WAUSDA) and the Curtin University Research Data and Primary Materials policy
9. Where practicable, results of the research should be made available to the research participants in a timely and clear manner
10. Unless prohibited by contractual obligations, results of the research should be disseminated in a manner that will allow public scrutiny; the Human Research Ethics Office must be informed of any constraints on publication

11. Ethics approval is dependent upon ongoing compliance of the research with the Australian Code for the Responsible Conduct of Research, the National Statement on Ethical Conduct in Human Research, applicable legal requirements, and with Curtin University policies, procedures and governance requirements
12. The Human Research Ethics Office may conduct audits on a portion of approved projects.

Should you have any queries regarding consideration of your project, please contact the Ethics Support Officer for your faculty or the Ethics Office at hrec@curtin.edu.au or on 9266 2784.

Yours sincerely

ABowater

Amy Bowater
Ethics, Team Lead

Appendix 8: Chapter 4 Supplemental Material

(Scoping Review Article) Appendix 1: Example Search Strategy

The example search strategy was completed in Medline OVID: (telepractice OR tele-practice* OR telehealth OR tele-health OR teletherap* OR tele-therap* OR telerehab* OR tele-rehab* OR telemedicine OR tele-medicine OR teleintervention* OR tele-intervention* OR telecare OR tele-care) ADJ5 (implement* OR establish* OR design* OR codesign* OR co-design* OR effect* OR eval*) OR (Telemedicine/ OR Telerehabilitation/) AND (disabilit* OR autis* OR asd OR cerebral palsy OR cp OR neurogen* OR down syndrome) OR (Developmental Disabilities/ OR Neurodevelopmental Disorders/ OR Intellectual Disability/ OR Autism Spectrum Disorder/ OR Cerebral Palsy/)*

(Scoping Review Article) Appendix 2: Thematic Analysis Initial Codes (step 2 of Thematic analysis)

Theme: Implementation			
Subtheme	**Codes**	**References**	**Mentions**
CFIR Evidence Strength & Quality		3	5
CFIR – Knowledge & Beliefs		11	27
	Perceptions	0	0
	Future Focus	1	1
	Service Recipient	10	35
	Service Provider	7	30
CFIR Available Resources		12	33
CFIR Cost		13	34
CFIR – Complexity		14	36
	Fidelity	1	1
	Rapport	12	41
	Safety & Quality	6	10
	Setting Clinical Boundaries	3	3
	Technology	17	56
CFIR Engaging		1	1
CFIR Patient Needs & Resources		15	29
	Support Person	7	14
CFIR Personal Attributes		6	9
	Disability Specific Considerations	1	1
CFIR – Relative Advantage		20	87
	Motivators	3	3
	Flexibility	2	3
	COVID	8	14
	Rural & Remote Access	9	24
CFIR Self Efficacy		11	32
CFIR Stage of Change		3	3

Theme: Utilisation			
Subtheme	**Codes**	**References**	**Mentions**
Therapy delivery types	Direct Therapy	1	1
	Group Interventions	2	2
	Hybrid Service Delivery	8	15
	Personalisation for the Individual	6	6
	Support Person Training & Coaching	2	2

Abbreviation - CFIR - Consolidated Framework of Implementation Research

Appendix 9: Scoping Review Protocol Paper

Telepractice utilisation and implementation in the Disability Sector: A Scoping Review Protocol

Cloe Benz[1], Associate Professor Richard Norman[1], Associate Professor Delia Hendrie[1], Mai Welsh[2], Mia Huntley[2], Professor Suzanne Robinson[1]

[1]School of Population Health, Faculty of Health Sciences, Curtin University, Bentley, Australia

[2] Rocky Bay, Mosman Park, Australia

Contact Author: Cloe Benz – cloe.benz@curtin.edu.au

Anticipated or actual start date: 4th Aug 2021

Anticipated completion date: 15st December 2021

Stage of review at time of protocol submission: Title and abstract review

Key Words: Telepractice, Digital Health, Disability, Implementation, Telehealth, Scoping Review, Allied Health

Registration: The protocol has been registered via the Open Science Framework

Background:

In Australia one-fifth of the population live with a disability, equalling 4.4 million Australians and the average person will live approximately one-fifth of their life with a disability [1]. Equitable access and opportunities for persons with a disability historically are a struggle, advocated and hard fought for by those within the disability community [2, 3]. Digital health initiatives are repeatedly touted as having the potential to improve access and empower persons with a disability to access evidence based care within their homes [4-7].

A subset of digital health initiatives utilising telecommunications to interact with clients at a distance exist, with numerous nomenclature used to describe the process. Defining contested terms in the digital health landscape with certainty and without ambiguity is difficult due to the lack of clarity of definition and interchangeability among published literature. Telepractice denotes separation from the health focused terminology of telemedicine [8] and telehealth [9] and most appropriately aligns with published studies in the Australian disability sector[5, 10]. Telepractice is defined as "the application of telecommunications technology to deliver clinical services at a distance by linking clinician to client, caregiver, or any person(s) responsible for delivering care to the client for the purposes of assessment, intervention, consultation and/or supervision" (Speech Pathology Australia 2014, p. 4) [11]. Telepractice is a broad term enabling applicability to a wide range of services provided in the disability sector inclusive but not limited to allied health therapy, nursing, support coordination and social skills training. Telepractice service design in the disability sector has unique challenges which have scarcely been addressed in evidence-based literature or industry [12]. For the purposes of scoping available literature the search strategy of this study is inclusive of numerous terms utilised for patient facing digital health initiatives delivered via video. However the term telepractice will be used in the discussion with the intention of being inclusive of all other potential interchangeable terms.

The Australian roll out of the National Disability Insurance (NDIS) scheme commenced in July 2016 as per recommendations from the 2011 Australian Government Productivity Commission report into Disability Care and Support, and transitioned service provision from a state based block funding model for allocated service provision to a fee for service quasi market[13]. This type of personalised care package and individualised service model had been implemented internationally, however the NDIS is the only model explicitly developed as an insurance scheme[14, 15]. The transfer of funding allocation and therefore control for service selection to the participants resulted in provider organisations aligning their services to a 'user-pay' business model that offers more flexibility, choice and control.

Telepractice has evidence to support use to provide therapy services to persons with a disability, and has a long history of pilot feasibility generally describing its utilisation on a small scale in facilitating therapy to geographically remote regions [5, 16, 17]. Following the international impetus to uptake telepractice created by the declaration of coronavirus (COVID) as a worldwide pandemic by the World Health Organisation (WHO) on the 11th of March 2020, recent evidence is emerging regarding the use of telepractice with disability sector clients. As a result of the stay at home orders present in Australia the NDIS included provision to purchase electronic devices to ensure participants had continued access to services via telepractice, and included a Telehealth claim field into the provider portal to identify the frequency of services provided via this model [18].

Telepractice, many sources agree, could have positive implications for increasing access for persons with a disability, if the services are designed as universally accessible [4, 12, 19]. An international study conducted across 76 countries indicated the percentage of allied health therapists surveyed who were utilising telepractice technologies to provide services directly to clients had increased from only 4% pre pandemic up to 70% during COVID [16]. From a research perspective the evident expansion of telepractice service models during COVID from small scale feasibility and singular service implementations to widespread international uptake enables the opportunity for a plethora of emerging evidence. The expedition of telepractice evidence and published literature may be analysed to inform improvements in service design through identifying barriers and facilitators to sustainable and effective telepractice services provision.

Objectives and Research Questions of the Scoping Review

The objective of this scoping review is to examine and map the research evidence addressing telepractice in the Disability sector. The scoping review question is set broadly as “how is telepractice utilised and implemented in the disability sectors?” with the associated sub-questions; “what are the barriers and facilitators to its use?” and “what is the effectiveness of telepractice in the disability sector and how is effectiveness measured?” Subset themes will be iteratively identified through the scoping process and narratively described.

Scoping Review Design

The review protocol formation is guided by the Joanna Briggs Institute methodology for scoping reviews with the inclusion and exclusion criteria following the Population-Concept-Context Model [20]. The reporting will be compliant with the preferred reporting items for systematic reviews and meta-analyses extension for scoping reviews (PRISMA-ScR) Checklist[21].

Population, Concept and Context of the Review

The population targeted within the scoping review will be people accessing services from disability or community care who have a disability which would be deemed permanent and significant as per the guidelines of NDIS service eligiblility [22]. The population group is inclusive of service users, their carers and family, support workers, and the providers of the service which their population group are accessing.

Telepractice service delivery as the concept for review will be specifically relating to synchronous video sessions provided to service users, support workers, family or carers for the purposes of disability care. With the context of the review being community settings within Australia, and equivalent settings overseas, our aim is to assess the implementation of telepractice as a service medium, however this review is not aiming to analyse the policy processes on a system level required for telepractice service provision within specific disability support schemes or how they differ from the NDIS.

Search Parameters

Inclusion Criteria:

a. User or provider of disability services (i.e. NDIS participants or equivalent disability service recipient inclusive of mental health diagnosis, carers, family members, teachers or aids providing therapy support, allied health professional, disability sector clinician, disability provider employee/manager/administrator, disability policy makers)

b. Video Based Synchronous Telepractice service provision

c. Analysis of the implementation or effectiveness of telepractice or an intervention provided via this medium, with studies discussing disability care sector service provision (therapy, social supports, early intervention, service management, personal supports)

d. Original primary research or evaluation articles (any methods) and Research is defined in the context of the scoping review to be "activities designed to develop or contribute to generalizable knowledge, i.e., theories, principles, relationships, or the information on which these are based, that can be confirmed or refuted by recognized methods of observation, experiment, and inference" [23]

e. Available in English Language with acessible Full Text

f. Publication date between January 2016 and when the searches are complete

Exclusion Criteria:

a. Participants accessing specialist psychological or mental health support not related to their disability supports, or not provided via the NDIS or equivalent programs (i.e. medicare supported access to mental health services, community mental health programs, specialist telepsychiatry)

b. An person with a disability accessing acute health care or primary care services

c. Asynchonous digital health interventions (e.g app based, web based education series, wearable telehealth monitoring technology)

d. Telepractice services provided via telephone

e. Secondary review articles including systematic reviews, meta-analyses, meta-syntheses, narrative reviews, mixed-method reviews, qualitative and rapid reviews which have been published in either peer reviewed academic publications or grey literature.

f. Opinion pieces, commentaries editorials without any components of original research

g. Articles which sumarises or provides an overview of literature without a review method

h. Studies in non disability sector settings (health care, hospitals, primary health, aged care, community health, veterain support services)

Search Strategy

An initial Systematic search was conducted inclusive of five bibliographic databases (ProQuest, CINAHL , Google Scholar, Medline (OVID), Scopus) to provide a baseline of available academic literature.

A subsequent iterative process of reference and authorship review of articles will be undertaken to identify any further articles which meet the inclusion criteria as well as a search of grey literature sources, web-based search engine (Google) and commonly utilised Disability sector information website portals to identify any further relevant information on the topic of telepractice use in Disability. Relevant commentary or opinion piece articles, as well as media articles will not be included in the scope of this review, however reference lists from such publications will be utilised for potential further evidence sources.

The scoping review as outlined above forms the literature review component of a PhD Thesis, and as such the title and abstract screening process will be completed by one author (CB), with additional authors contributing input with ambiguous articles. The extraction of full text for potentially eligible studies will be completed by one author (CB) and subsequently assessed for inclusion, with any potentially contentious articles escalated to the other authors for determination of eligibility.

Example Search Strategy

The example search strategy was completed in Medline OVID: (telepractice* OR tele-practice* OR telehealth OR tele-health OR teletherap* OR tele-therap* OR telerehab* OR tele-rehab* OR telemedicine OR tele-medicine OR teleintervention* OR tele-intervention* OR telecare OR tele-care) ADJ5 (implement* OR establish* OR design* OR codesign* OR co-design* OR effect* OR eval*) OR (Telemedicine/ OR Telerehabilitation/) AND (disabilit* OR autis* OR asd OR cerebral palsy OR cp OR neurogen* OR down syndrome) OR (Developmental Disabilities/ OR Neurodevelopmental Disorders/ OR Intellectual Disability/ OR Autism Spectrum Disorder/ OR Cerebral Palsy/)

Extraction of the Results

It is anticipated the scoping review will be heavily weighted with qualitative data and therefore an outline of themes for analysis based on the research question are outlined *a priori*, as follows:

- Common Features of telepractice interventions in the disability sector
- Common features of telepractice implementation strategies in the disability sector
- Types of telepractice models and services available
- Barriers to successful implementation/uptake of telepractice in the disability sector
- Facilitators to sustained use of telepractice delivered interventions
- Common needs/adaptations required for people with a disability to engage in telepractice

There may be additional themes and categories which are of interest to the review and identified throughout the data collection process, these will be allocated under the additional subset of 'emerging themes' in the data analysis template.

Data extraction

Extracted information from the included studies will be inputted into a data extraction template. The template will include extracted information categorised as follows: article title, publication year, authors, publication type, study aim/objectives, methodology, methods, population/target group, setting, description of telepractice service medium, description of intervention delivered via telepractice, description of assessment or outcome measures, a priori themes, and any emerging themes.

Data Synthesis Strategy

The data synthesis of the scoping review will include a numerical analysis of descriptive characteristics for all included studies as well as any specific breakdowns of included studies into groups. The review will include the entire data extraction table as an appendix with summarised tables of relevant data included in the body of the scoping review. Narrative exploration of thematic analysis will describe the findings of the review in relation to the research question, sub questions, a prior and emerging themes.

Dissemination Plan

The scoping review will be published in an Open Access format of a Peer Reviewed Journal from the topic areas of telepractice/telehealth, disability services or allied health therapy. The article once published will be circulated within the academic department of the authors as well as to the Disability Service provider who is undertaking the role of industry partner for the overall PhD thesis. A subsequent easy read accessible version of the information is to be produced for dissemination to the disability community via the industry partner and their connections to other disability providers across Australia.

Funding Sources/ Sponsors

The proposed scoping review is a component of the PhD thesis by complication submission by the First Author who is the recipient of an RTP Scholarship.

Conflicts of Interest

The Authors declare that they have no known conflicts of interest.

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Appendix 10: Chapter 5 and 6 Article Supplemental Material

(Chapter 5 & 6) **Appendix 1:**

Topic	Key Question	Follow-up questions
Introduction and implementation of the intervention	Can you describe the introduction of telepractice at your organisation? What were some positives that came out of implementing Telepractice?	What was your role in the telepractice introduction? How prepared did you feel at the time of implementation? Did you have sufficient resources? What investments did you need to make? (put into organisation section) What was the initial response for? How does telepractice compare to usual care?
	What videoconferencing platform/s do you use and why?	Do you offer a choice of videoconference platforms to your staff/customers? What are your preferences and why? What risks are there with the platform that you use and how do you mitigate these?
	What were the main barriers and facilitators you or your clients faced to implementing Telepractice?	What were some positives that came out of implementing Telepractice? Are there differences in quality between telepractice and usual care? Are there differences in cost between telepractice and usual care? What strategies did you put in place to address these barriers?
	What kind of resources and supports were required for Telepractice implementation?	Do you feel there were additional resources that you required and didn't have? Who was responsible for the resourcing, training, and support for the telepractice program? Was it timely, relevant, and sufficient?
	What has changed and/or how have you adapted since the initial implementation of Telepractice?	Have you made any disability specific modifications to usual telepractice sessions?
	Reflecting on this process, what would you recommend to someone starting out?	How have you reflected and evaluated in your organisation on the success of telepractice implementation? What would you recommend as something you would do, vs things you wouldn't do?
External Contexts and Patient needs	How do you feel the Pandemic and related government/health mandates have impacted on your use of Telepractice?	Did the pandemic have a direct impact on your decision to implement telepractice, either through forcing the introduction or speeding up the timeframe? How do you feel the length of time you were in lockdown due to the pandemic changed or impacted on the telepractice service? Is there a noticeable difference in uptake of telepractice during lockdown periods vs normal business?

Topic	Key Question	Follow-up questions
	Do you feel the NDIS adequately supports the use of telepractice in the disability sector?	Did you facilitate purchase of technology or specific training to enable telepractice sessions? How did you do this? (funding) Do you feel the use of telepractice supports the principle of choice and control for users of the NDIS?
		(CLINICIANS) Did your therapy discipline professional registration body provide education and support to guide your practice during the transition to virtual delivery?
	How have your customers responded to the transition to telepractice?	Do they feel it meets their needs? Have you requested feedback from customers regarding telepractice? How are the needs of customers met through telepractice?
Characteristics of the organisation & Individual using Telepractice	Could you please describe the culture of your organisation in implementing change?	What else was happening at the time? Do you feel this impacted on the success or openness for change of the staff and service users? Did you feel there was/is clear goals and feedback provided by the organisation regarding telepractice?
	Do you perceive notable differences in motivations to use telepractice from specific groups?	Are there notable differences in providing telepractice services to metropolitan vs regional customers? Do you feel you or your staff, and customers feel confident in using telepractice to provide/engage in services? Is there a notable difference between initial session vs subsequent follow up appointment?
	Do you feel your organisation was open to the introduction of telepractice?	Were there biases towards or against specific groups of clinicians or clients using telepractice? E.g. elderly customers, specific therapy disciplines etc. Has that changed from initial implementation to now? Are there specific kinds of consults and specific kinds of clients which will keep using telepractice into the future?
Closing Question	All things being equal, with any kind of advancements you can think of; what do you see as the future for this type of technology/ service delivery?	

(Chapter 5 & 6) **Appendix 2:** Consolidated Framework For Implementation Research[1] – Salient Constructs

Domain	**Salient Construct**
Intervention	Relative Advantage Adaptability Complexity Cost Design Quality and Packaging

Outer Setting	Patient Needs and Resources External Policy and Incentives
Inner Setting	Culture Compatibility Learning Climate Available Resources Goals and Feedback Implementation Climate Access to Knowledge and Information
Individual	Knowledge and Beliefs Personal Attributes Individual Stage of Change Self-Efficacy
Implementation	Engaging Reflecting & Evaluating
1. Kirk MA, Kelley C, Yankey N, et al. A systematic review of the use of the Consolidated Framework for Implementation Research. *Implement Sci* 2016; 11: 72-72. DOI: 10.1186/s13012-016-0437-z.	

(Chapter 5) **Appendix 3:** Demographic Survey Questionnaire

S/N	**Questions**	
1	Contact details	
	Telephone Number:	
	Email Address:	
2	What year were you born?	
3	What gender do you identify as?	☐ Female ☐ Male ☐ Prefer not to say
4	What is your Professional Qualification/Background? e.g. dietician, physiotherapist	☐ Dietician ☐ Physiotherapist ☐ Occupational Therapist ☐ Speech Pathologist ☐ Social Worker ☐ Nurse ☐ Other
5	Which Disability Organisation do you work for?	
6	What is your Role?	

7	What sector of the disability community is serviced by your organisation? (Tick multiple answers if applicable)	☐ Paediatric ☐ Adolescent/Yong Adult ☐ Adult ☐ Elderly
8	When did your Service implement Telepractice?	Approximate Date:
9	What Types of Telepractice do you offer?	☐ Telephone ☐ Videoconference
10	What Videoconferencing platform do you use? (list multiple if applicable)	☐ Zoom ☐ Google Meet/Hangout ☐ BlueJeans ☐ Skype ☐ WebEx ☐ Doxy.me ☐ MS Teams ☐ Whatsapp ☐ VSee ☐ Coviu ☐ Facetime ☐ Other
11	What Types of services are provided by telepractice?	☐ Initial Assessments (therapy) ☐ Review/Ongoing Interventions ☐ Support Coordination ☐ Regional Outreach Services ☐ Multidisciplinary Review Sessions ☐ Family/Customer meetings ☐ Coaching/Training of Family members or carers ☐ Direct Therapy to customers ☐ Equipment Prescription/Home Modification appointments ☐ Other

Appendix 11: Chapter 7 Article Supplemental Material

Appendix 1:

Process of co-production and preparation for co-design

The process of co-production is multi-faceted and requires careful and considered planning to support including the right people in the right ways, with trust etc. While the design component of the process is the predominant focus of the case study presented below, a brief overview of the completed preparatory steps will be outlined first. The iterative process of building the conditions[1] for a successful co-design process is essential, this process continues throughout the entirety of the project to ensure a safe and welcoming environment for co-designers (people with disability, Rocky Bay staff etc.). From the outset, co-production was built in from conception to completion, including an oversight steering committee with customer representation, working with a peer researcher, co-planning activities, co-authoring outputs, the researcher being embedded in the organisation and working iteratively with the co-designers throughout the design process.

Getting Started:

The initial phase of the project sought to understand the needs of Rocky Bay and other similar organisations across Australia to establish a baseline and potential areas of improvement. This wide-lens exploration was followed by a narrow-lens investigation of telepractice related experiences of customers, clinicians and non-clinical support staff at Rocky Bay. Each participant of the study completed a one-on-one interview with either the peer researcher (for customers) or the embedded researcher (for staff), followed by the opportunity to attend customer- or staff-specific focus groups to reflect on the interview findings. Following the focus groups, participants were informed about design workshops to be conducted in the next step of the co-design process, and that the research team would contact them individually to discuss their potential participation.

Co-design Workshops

This section breaks down the co-design process by group, structure, facilitation and finally described each of the five workshops.

Staff and community co-designers

The project participants were offered the opportunity to express their interest to participate in a co-design workshop series conducted in a hybrid of in-person (session 1) and virtual (session 2-5) formats due to travel burden, increased risk of virus transmission and stress of clinical environments exclusively in-person sessions were not preferred by people with disability. Of those who expressed their interest, the selection of the co-designers aimed to have at least the same number of customers than of staff[1] acknowledging the asymmetry of power. The final co-design group included ten members, five Rocky Bay staff and five customers, one of which had become a staff member in the administrative team of the clinical department in the time between their initial interview and the commencement of the workshops. Within the context of the workshops this co-designer was given the choice, when relevant, to participate in the customer or staff groups.

The customer group included three wheelchair users, a person with low vision and hearing loss, two people with upper limb impairment and one person who chose to attend virtually due to high risk of contracting respiratory viruses. The staff co-designers included four clinicians across occupational therapy, dietetics, speech pathology and nursing and the final co-designer was the management representative responsible for briefing senior management, business case writing and implementing the outputs of co-design.

Workshop Series Structure:

The co-design workshops were conducted as a set of five sequential 90-minute workshops with the same group of co-designers, in a hybrid of in-person (workshop 1) and online (workshops 2-5) delivery. Through consultation with the customer co-designers, a mutually accepted location for the initial session was selected. For timing a Tuesday after hours' timeslot was selected to facilitate customer co-designers attending after work to decrease disruptions and improve accessibility[1].

Workshop Facilitators:

The embedded researcher (CB) and peer researcher (WSJ) facilitated the workshops with the support of an additional support person Katie Harris (KH), as it was identified that a support person assist with breaking down tasks, asking questions to clarify instructions and advocate for the needs of the customer co-designers, similar to the provocateur role described by McKercher[1]. However, it was recognised that any person with experience in supporting people with disability, could have personal experience interacting with disability services or providers which may influence their interaction with the workshop content. Therefore, with appropriate ethical approvals, a primary school teacher known to the first author was approached to help, as their experience in supporting the completion of classroom activities was viewed as suitable for the role.

Pre-Workshop Preparations:

In the weeks prior to the workshops, each attendee was asked to complete a brief survey including their preferred name and pronouns, their preference for beverage or snack, and any travel or other support needs to assist them in attending the workshops in-person or virtually. They were also provided with a workshop-specific participant information statement and consent form, which provided additional information to the original information and consent provided prior to the initial interview and focus groups. One week prior to the first workshop, each attendee was sent a short workshop information video recorded and captioned by the peer researcher describing what to expect from the workshops, what not to expect and what the expected code of behaviour to support a safe working environment for all co-designers[1].

Workshop Resources and Supports

The first workshop focused on the need for the co-designers to build relationships with each other and familiarise themselves with the group, redesign context, facilitators and types of tasks used throughout the workshop series. As the first workshop was to be held in-person, special focus was put on meeting the needs of the customer attendees in terms of transport, parking, access to the building and room and having sufficient space to comfortably move around, inclusive of any wheelchair users. A location was selected, with the peer researcher calling each of the customer co-designers to confirm the location and assess any transport support requirements, while the embedded researcher liaised with the staff attendees to confirm their ability to attend. As a strategy recommended by McKercher[1] to decrease stress or discomfort of arriving co-designers, the peer researcher was waiting at the entry of the location to welcome everyone and direct them to the correct room where the first author was waiting to provide information regarding rest room facilities and a sensory break room provided for those with sensory accessibility needs.

Using the information gathered through the pre-workshop questions, each co-designer was provided on arrival with a care package providing all required resources to ensure equitable workshop participation[3].

A name tag was included with their chosen name and pronouns, and confirmation was sought from a co-designer with upper limb impairment as to the easiest nametags to wear. All staff co-designers were asked to wear neutral non-work attire to the workshops and no other name badges or identifiers to limit any power imbalances that may be derived from professional appearances or attire[1]. Other items included were an Acknowledgement of Country and code of care card[1] describing the behaviour principles of the workshops and a human bingo activity card which was used for an activity described below. In addition to the resource cards, each co-designer's individualised care package included their beverage choice, snack preference, a sensory fidget toy[5], a whiteboard marker and wipes, and a set of sticky note tabs.

Enabling different kinds of participation

Co-designers were given a set of response cards to enable non-verbal and visual responses to questions if this was the communication preference of the participant. The peer researcher (WJS) and the embedded researcher (CB) developed the tool together Figure 3 below. Consideration of the contents of each card were guided by the insights from Schwartz and Kramer[4] which worked with a group of peer researchers in creating a participant reported outcome measure for young people with intellectual disabilities. Findings of this article included the emphasis that people with intellectual disability were more likely to respond yes if the alternative had frowning face or red coloured images as they were perceived as being negative and to avoid offence[4]. In deference to these findings, all cards were designed to include smiling faces and no cards were coloured red or green to minimise any subconscious biases towards the green/good response versus the red/bad response card, as shown in Figure 3.

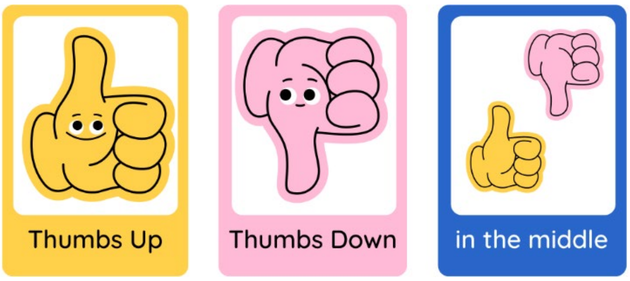

Figure 3: Non-verbal response cards (half page width)

Workshop 1: The Beginning

The first activity of the workshop was a human bingo card which required placing the name of a co-designer in each box who fit the described characteristic of that square as an opportunity to start building relationships. As a strategy to accommodate the two co-designers unable to attend in-person, two laptops were set up with individual videocall streams enabling them to interact one-on-one with other co-designers during the activities through noise cancelling headphones and listen with the group to instructions. The workshop facilitators participated in this activity alongside the co-designers as it was deemed important for the relationship between facilitators and co-designers to build in congruence with the group relationships.

The second activity used sets of *The Real Deal* cards by Peak Learning[6] to facilitate an activity that asked the co-designers to sort cards to prioritise the top five experiences and feelings they would want in a future version of telepractice. The co-designers were split into four small groups with a mix of customers and staff, and each group was tasked with negotiating and collaborating to produce their top five experiences and feelings desired for future service success. This task was intended to assist co-designers to understand what they were aspiring to achieve with the co-design process[1].

After Workshop 1

Following workshop one a summary of the session was sent to each co-designer that included the opportunity to provide feedback and a reminder of the time and place of the next session.

Workshop 2: Mapping the Journey

The second workshop was held via Microsoft Teams (MS teams) and aimed to produce a journey map of the current customer experience of telepractice across five phases including (1) before, (2) selecting telepractice, (3) telepractice preparation, (4) doing telepractice sessions and (5) after. In preparation for this workshop, first author CB analysed the customer responses from the initial one-on-one interviews and tentatively placed excerpt quotes along a timeline representing the journey customers take through telepractice delivered services. With assistance from peer researcher WSJ these excerpts were compiled into PowerPoint presentations, each presentation including one of the five phases across the timeline and colour-coded to match that section on the proposed journey map visualisation.

The co-designers were allocated into four groups with one member of each group consenting to sharing their screen in a breakout room for their group. This co-designer was sent one of the files from phases 2-5 to work through prior to the session in preparation. Following a brief introduction and recap, the facilitators described the journey mapping process and showed draft visual. The first phase was used as an example demonstration by the facilitator CB, and co-designers were able to ask questions prior to moving into breakout rooms. Each group was comprised of a mixture of customer and staff members, prioritising the needs of the customers to have staff who would be the best fit in supporting them to feel comfortable and safe working through the task[1].

Each group worked collaboratively to complete the exercises outlined in their presentation slides from the data excerpts corresponding to their allocated phase of the journey map timeline. Following the completion of the task, the groups returned to the central room to describe their findings to the remainder of the co-designers. One component of the activity was accidently skipped by a group and was subsequently completed by the whole co-design group with the facilitators at the end of the session.

After Workshop 2

A draft of the journey map was circulated for feedback from co-designers following the compilation of answers by first author CB into the visualisation. The process of developing the journey map and the resultant visualisation is described in further depth elsewhere with co-authorship of the co-designers.

Workshop 3: Ideas for Patching the Pain Points

Co-designers reviewed and confirmed the journey map at the beginning of the third workshop. Following this, the group split into two groups, with the customers completing an activity that established their preferences for how some of the challenges identified in the journey map may be remedied. Simultaneously, the staff members of the co-design group were completing a parallel activity to address pain points from a service delivery point of view. These pain points were identified in the clinical and non-clinical staff interviews as well as from the journey map summary of customer interviews. The groups were split to make room for divergence of needs and perspectives and mitigate any perceived power over solutions not directly impacting them.

The customer activity was supported by WSJ (peer researcher) and KH (educator facilitator) and included the group responding to seven questions:

1. How would it be best to access information re: telepractice and spread awareness?
2. How would it be best to understand when and why it might (or might not) be good to choose telepractice?

3. How would it be best to learn about how to use telepractice?
4. How would it be best to access support for set up / troubleshooting?
5. How would it be best to be reminded of sessions and updates?
6. How would it be best to choose between delivery modes?
7. How would it be best to improve virtual experience? (tech features)

A visual prompt card was shared on the screen to support ideation, from which customers could choose any option to answer the question or propose an alternate option. The prompt card supported customer co-designers to analyse current available and feasible options while simultaneously building a platform for them to link to additional ideas.

Staff in workshop three completed a mind map which was first draft by first author CB through a process based on the blueprinting guidelines of Flowers and Miller[7]. The activity uses current state service blueprinting to identify a concrete list of opportunities for improvement, derived from interview data and the customer journey map, with four prompts for co-designers to commence planning the actions required to implement these improvements. The four prompts were:

1. Roles: which role and responsibilities would encompass this proposed improvement and who would need to be involved in the development and implementation of this action?
2. Policies: which policies or guidelines currently in place may need to be amended, or what new policy or guideline may need to be created in the development and implementation of this action?
3. Technology: what systems and tools currently exist within the organisation to enable this action, or what systems or tools may need to be acquired?
4. Value Proposition matrix: measuring the expected level of effort and level of value of completing each of the proposed opportunities for improvement.

Each of the four prompts were completed for the ten proposed opportunities for improvement to form the initial ideation for the future state of telepractice from a service delivery perspective.

Workshop 4: Story Telling and Generation of Future State Solutions

The fourth workshop commenced by reflecting on the activities completed thus far and introduced the idea of prototyping[8] as a method of displaying the proposed ideas and testing their desirability, feasibility and viability with a wider audience of customers and staff? The co-designers helped to plan the prototyping by progressing through the steps of deciding what to test, deciding what they were trying to learn and who they wanted to learn it from, establishing what roles people would take on to complete the prototype, and selecting a type of prototype and method of testing it. Each of these steps was completed as a group using a shared presentation which included options for categories of prototypes available, and how those options could be tested. accessibility was a key consideration in the selection of a prototype as the group were conscious of creating a prototype that would be viewed by people with disability. An additional goal for the group was to choose a prototype that they could virtually collaborate on from different locations. The co-designers selected a storyboard with separate customer and staff-focused versions in a picture book format which could be created in shared PowerPoint files, narrated, and presented in a video by the co-designers. The method of testing was to be a short online survey in which viewers of the prototype storybook video could click a link or scan a QR code to complete, allowing them to give their thoughts and suggestions for improvements.

After co-planning the prototype, the co-designers were given a summary of the information gathered in the previous workshops and split into four groups, made up of either customers or staff to commence work on creating stories to describe potential future telepractice experiences. These stories were sent to the facilitators at the conclusion of the workshop to commence drafting the prototypes.

After Workshop 4

Co-production of the customer and staff prototype versions were collaborated on by the co-designers during the two-week period between workshops four and five, with support and input from the facilitators. The prototype files were co-produced, with different co-designers working on the visual aspects, the script for the main audio narration and introductory explanation.

Workshop 5: Finishing the Story

At the final co-design workshop the draft prototypes were reviewed and iterated by each of the small groups. Once each group had a chance to review their stories, the full drafts were reviewed for comment by the whole co-design group, with specific attention paid to the cohesiveness of the story presented in the prototypes.

The final activity for the prototype review was to discuss what feedback questions to ask viewers after engaging with either the staff or customer prototype. The survey format included a customer and staff stream; however, the questions were in principle the same, with wording variations to accommodate the different audiences. Following thoughtful discussions, consensus was reached by all co-designers on the final survey questions (Appendix 1).

The conclusion of the final workshop gave co-designers an opportunity to provide their feedback on the co-design process, elements for improvement and aspects they valued in participating in the project. Their reflections are included in the section *Co-designer's perspectives of the workshop series*,reflecting on the benefits and challenges of the way co-design was implemented.

Post Prototype Reflection Session

A final reflection session was held with co-designers to review the findings of the prototype testing, discuss adaptations to the current plan and input on the implementation plan to be proposed to Rocky Bay. The findings of the survey from prototype testing were presented to the co-designers as a one-page visual infographic, with an option to access a long format summary.

Following discussion of the results of the survey and proposed changes to the telepractice design, the co-designers reviewed a set of proposed service principles for the new telepractice implementation, which seek to align any future decisions in the implementation and service provision stages to the intentions of the co-design team. The final aspect of the session was for co-designers to reflect on their thoughts and feelings of the proposal for telepractice re-design which they had produced and gained feedback on through prototyping. Feedback relevant to subsequent discussions of challenges and benefits of co-design are included in the following section *Co-designer's perspectives of the workshop series*.

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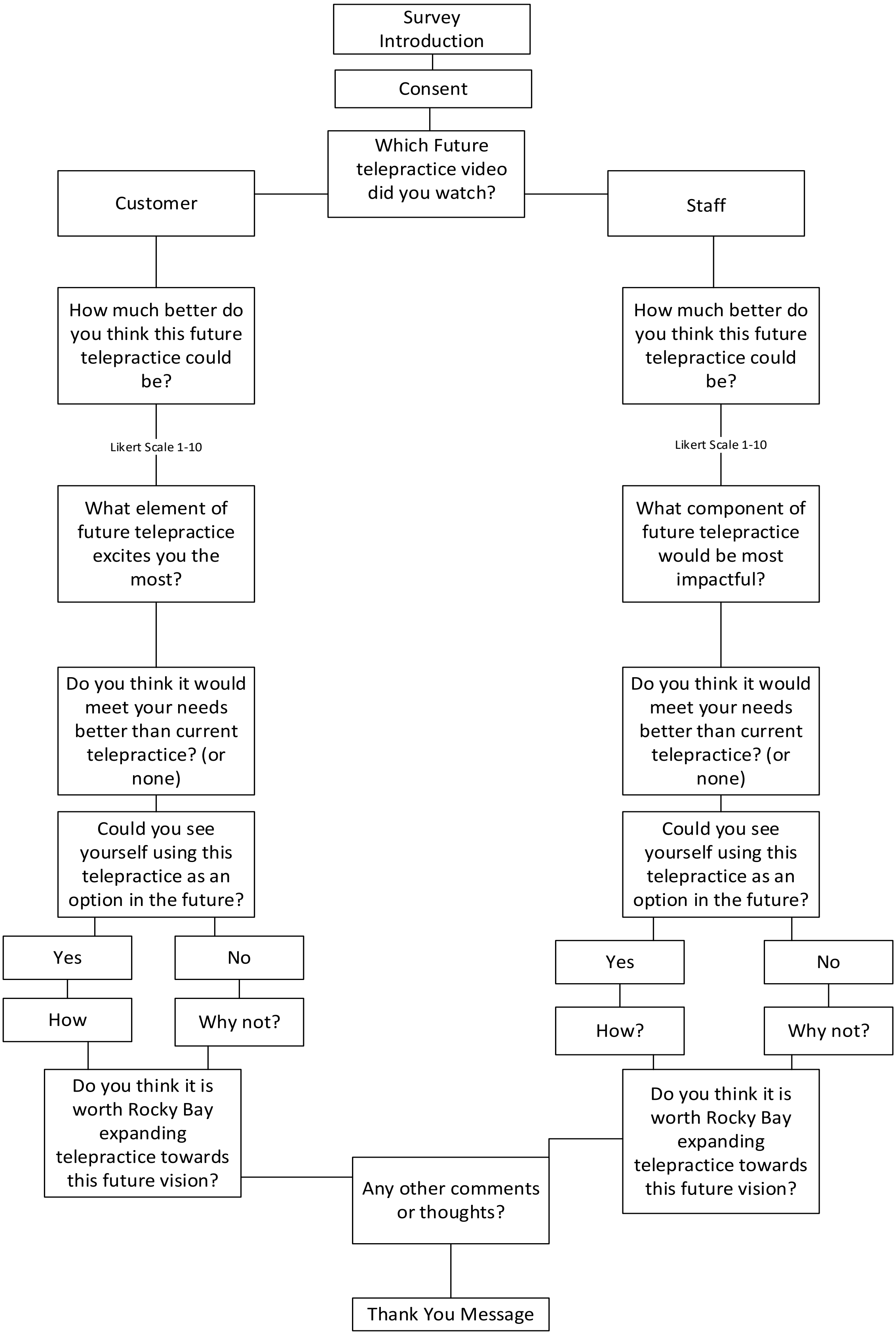
(Chapter 9) **Appendix 2:** Prototype Survey Questions



(Chapter 9) **Appendix 3:**

Workshop 5 Reflection Activity

We have are a series of questions to help you with reflecting on this experience, you are welcome to answer all of them or any of them. You are welcome to provide your feedback in any format you wish, including written, verbal/audio recorded, visual drawings/art etc. We will start the conversation today and then you can send through your final thoughts when you're ready via email (or post if you'd like to). We would love to include some of your thoughts in the published work of this project eg. The submission to rocky bay and my PhD and you can let us know if you'd like your name to not be included with your feedback, and of course we will show you what would be included before we do it.

The questions are:

1. How easy have the activities been to do?
2. How much have you felt a part of the team in this process?
3. Is there any key parts of the experience you'd like to share with us?
4. Why do you think this work matters?
5. What might you like to be different?
6. What did you love and learned in this process?
7. **What was the biggest change from being a part of this project?**

Reflection Session Activity

These questions were provided via a qualtrix survey with a QR code and link during the reflection session with co-designers:

1. What do you think about the Telepractice prototype/proposed service that has been created?
2. If you could describe your involvement the new telepractice service design in one word, what would it be?
3. What is the most important thing for this project to achieve? (if only one thing could be guaranteed what would it be?)
4. Any final thoughts or comments?

Appendix 12: Rocky Bay Telepractice Resources

REDACTED UNDER COMMERCIAL CONFIDENCE

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