CONTEXTUALLY RESPONSIVE SUPPORT AND DEVELOPMENT STRATEGIES FOR GENERALIST OCCUPATIONAL THERAPISTS DELIVERING HAND-INJURY CARE IN SOUTH AFRICA

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DECLARATION

I, Kirsty van Stormbroek, declare that this thesis is my own, unaided work.
It is being submitted for the Degree of Doctor of Philosophy at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at any other University.

I confirm lead authorship of the published articles included in this thesis.

Kirsty van Stormbroek

22nd day of May 2024 in Johannesburg

Lovingly dedicated to *Dad:*

Hans van Stormbroek

(1952-2020)

PRESENTATIONS ARISING FROM THIS STUDY

	Title	Authors	Meeting
1.	An online Community of Practice for generalist therapists in underserved contexts: insights for capacity building in LMICs	Kirsty van Stormbroek, Tania van der Merwe, Lisa O'Brien and Hellen Myezwa	IFSSH, IFSHT, FESSH Triennial Congress. London, England. June 2022
2.	Hand therapy on the move: taking therapy to harder-to-reach communities	Kirsty van Stormbroek, Melissa Westig, Lauren Holman, Amy Button, Anna Folly, Derryn Palmer, Zerilda de Kock, Juané van Aardt, Carla Joubert, Jessica Joubert	IFSSH, IFSHT, FESSH Triennial Congress. London, England. June 2022
3.	Hand therapy on the move: taking therapy to harder-to-reach communities	Juané van Aardt, Melissa Westig, Lauren Holman, Amy Button, Anna Folly, Derryn Palmer, Zerilda de Kock, Carla Joubert, Jessica Joubert, Kirsty van Stormbroek	Rural Health Conference. Oudtshoorn, South Africa. September 2022.
4.	Consensus Development Conference: Recommendations for quality hand therapy in the public sector *(invited presentation)*	Kirsty van Stormbroek	SASHT (South African Society of Hand Therapists) Executive Committee Council Meeting. Online. May 2023.
5.	'The art of surthrival': learning from the experiences of novice occupational therapists delivering hand-injury care in South Africa	Kirsty van Stormbroek, Lisa O'Brien, Tania van der Merwe, Hellen Myezwa	FESSH-EFSHT Congress, Rimini, Italy. May 2023
6.	Hand-injury care for *all* evidence-informed steps towards universal hand therapy coverage	Kirsty van Stormbroek, Lisa O'Brien, Tania van der Merwe, Hellen Myezwa & Antoine Rocher	52nd Annual Congress of the South African Society for Hand Surgery. Cape Town, South Africa. September 2023
7.	"I didn't want to do a PhD: they invested in me anyway"	Kirsty van Stormbroek	Inaugural CARTA (Consortium for Advanced Research Training in Africa) Conference. Johannesburg. South Africa. September 2023.

PUBLICATIONS ARISING FROM THIS STUDY

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2	Developing policy-informed principles for rehabilitation using a model of care framework: a hand therapy example in a Global South context	Target journal: Disability and Rehabilitation	Article in submissable format to be submitted after examination.
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5	Hand therapy on the move: taking therapy to harder-to-reach communities	Target journal: Journal of Hand Therapy	Article in submissable format to be submitted after examination.
6	'A different ball game': responsive capacity strengthening for hand rehabilitation in resource-constrained contexts	Occupational Therapy International	Submitted July 2023 - *under review*.
7	Strengthening capacity for universal basic hand therapy in South Africa: a consensus development study	Target journal: Journal of Hand Therapy	Article in submissable format to be submitted after examination.
8	*Hand-injury care for all: strategic steps towards universal Hand Therapy coverage*	*IFSSH E-zine (professional magazine)*	***Published –** see Appendix 1* *van Stormbroek K. Hand injury care for all: strategic steps towards universal hand therapy coverage. Ezine IFSSH. 2023;13(2):38–40.* *https://ifssh.info/pdf/ifssh_issue_50.pdf.*

ABSTRACT

Hand injuries are common in South Africa and safe and effective hand therapy is critical to appropriate care. By necessity, this care is delivered by non-specialist occupational therapists working in challenging settings, despite hand therapy commonly being considered a specialist area of practice. Safe and competent management of hand injuries by therapists is crucial for achieving a return to full participation in daily life. It is therefore necessary to describe *what* the support and development needs of these non-specialist occupational therapists are, and *how* these needs can be met effectively and sustainably.

This project aimed to describe how the support and development needs of generalist occupational therapists delivering hand-injury care within the South African public health sector can be met in a contextually responsive manner. A multi-method approach was chosen, with a separate study design employed for each of the three studies.

The policy context is an essential aspect of contextually responsive intervention; therefore the first study aimed to develop policy-based principles for hand rehabilitation services delivered by occupational therapists in South Africa. A descriptive qualitative approach was employed, and framework analysis, as a content analysis method, was undertaken. Local and international policies (n=29) were included in the analysis, and eighteen principles were generated that articulate the goal of rehabilitation (*principle 1*), prescribe the nature of rehabilitation (*principles 2-6*), and outline the enablers of rehabilitation (*principles 8-18*). These generic principles are applied to the practice of hand-injury care in South Africa.

Contextually responsive intervention responds to the needs and experiences of service providers. Study two (which consisted of Study 2A and Study 2B) used a qualitative instrumental case-study design to describe generalist occupational therapists' experience of delivering hand –injury care in order to identify their support and development needs and to describe how these can be met in a contextually responsive manner. Study 2A undertook this aim with a group of novice occupational therapists (n=9) completing a compulsory year of state service directly after graduation and made use of an online community of practice for data collection. Study 2B used site visits and in-depth interviews to collect data from fully registered occupational therapists (n=6) working in diverse public health settings in South

Africa. Reflexive thematic analysis was used to generate rich themes, which informed recommendations for the support and development of therapists extrapolated from both studies.

Study 3 sought to combine the evidence produced by Studies 1 and 2 with the diverse perspectives of service users, other service providers, local and international scholars, educators and professional bodies. The aim of the study was to identify capacity strengthening strategies for generalist occupational therapists responsible for delivering hand-injury care in the South African Public Sector. A hybrid consensus development conference was used to facilitate the presentation of relevant evidence. A stakeholder panel (n=14) followed a nominal group guided by a skilled facilitator. The panel generated and ranked ideas, which were developed into ten prioritized areas for action. Extensive ideas within each of these ten areas were recorded. These areas formed the foundation of the guidelines developed by the project.

A pragmatist approach to evidence synthesis was used in the final stage of the project to systematically generate guidelines for the support and development of generalist occupational therapists delivering hand-injury care in South Africa. Eleven guidelines were developed, with the first guideline addressing the need to align hand-injury care services with professional values (1), including the mandate to improve participation and inclusion. Five guidelines address generalist occupational therapists' direct need for support and supervision (2), resources (3), core competencies for hand-injury (4), the creation of a learning stratosphere to support this (5), as well as the imperative to nurture resilience (6). The final five guidelines address factors that are indirectly essential to therapists capacity to deliver hand-injury care: the need to strategize and operationalize (7), strengthen health systems (8), build stronger communities (9), strengthen human resourcing (10), and strengthen the medical and surgical management of hand injuries and conditions (11). Finally, key implications for practice, learning and development, leadership and management, policy, and research are proposed.

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NOMENCLATURE

Capacity strengthening: actions or interventions that strengthen capacity at an individual, organisational and/or environmental level as a means to strengthen health service delivery[1], used interchangeably in this PhD with the term *support and development strategies.*

Community of Practice: "A group of people who share a concern or a passion for something they do & learn how to do it better as they interact regularly"[2(p.14)].

Community Service: A year of compulsory service undertaken by newly graduated health professionals in South Africa, typically within rural or underserved settings[3]. Community Service is a pre-requisite for complete registration (registration as an independent practitioner) as a health professional with the Health Professions Council of South Africa.

Generalist occupational therapist: used in this PhD to refer to public health sector occupational therapists who do not have a specialist qualification within hand therapy and/or are routinely required to work within other areas of occupational therapy practice (e.g. psychiatry, paediatrics, neurology).

Hand-injury care: used within this PhD to refer to the comprehensive management of hand and upper limb conditions (prevention, promotion, cure and rehabilitation) at all levels of care, from basic principles of practice within the primary setting to advanced surgery and therapy at the end of the referral pathway[4].

Hand rehabilitation: used interchangeably with hand therapy within this PhD to refer to the holistic assessment and treatment of patients or communities with, or at risk of, conditions or injuries affecting the hand or upper limb. It does not exclude preventive, promotive or curative aspects of care[4].

Hand therapy: used interchangeably with hand rehabilitation within this PhD to refer to the holistic assessment and treatment of patients or communities with, or at risk of, conditions or injuries affecting the hand or upper limb. It does not exclude preventive, promotive or curative aspects of care[4].

Low to middle-income country: a term that classifies a country's economic development reflected in per capita gross national (annual) income between ≤$1135 (± 21 000 ZAR) (low-income country), $1136 - $4465 (± 84835 ZAR) (lower middle-income countries), and $4466 - $13845 (± 263055 ZAR), as calculated using the World Bank Atlas method in 2022[5].

High-income country: a term that classifies a country's economic development reflected in per capita gross national income of ≥$13846, as calculated using the World Bank Atlas method in 2022[5].

Virtual Community of Practice: A Community of Practice that uses the internet to engage with others who share a similar interest or concern in order to exchange expertise and experiences.[6,7]

ACRONYMS

LMIC: Low to middle-income country

OT: Occupational Therapist

CS: Community Service

CSOT: Community Service occupational therapist

CoP: Community of Practice

VCoP: Virtual Community of Practice

OCoP: Online Community of Practice

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CHAPTER ONE: Introduction

1.1 Introduction

The focus of this thesis is to provide a context and evidence-informed response to the support and development needs of generalist occupational therapists delivering hand injury care in the South African public health sector. This chapter aims to orient the reader to the problem under investigation and outline the research project undertaken in response to this.

This chapter commences with a background to the PhD study that consisted of several sub-studies. It positions the PhD study by guiding the reader through important contextual information, outlining what is known in the field, and identifying gaps in the evidence. An account of the process I undertook to refine the original research concept is then presented. The purpose of including this is to demonstrate how the refinement process enabled engagement with stakeholders and facilitated a sharpening of the PhD study's focus. Having contextualised the PhD study and delineated the evidence gap into which the study was positioned, a succinct problem statement, justification for the PhD study, and a description of the significance of the work follows. Against this backdrop, the research questions and overarching research aim are presented. Although not traditionally discussed in an introduction chapter, the study approach will also be outlined. Overtly articulating this approach will enable the reader to understand the rationale for the structure of the thesis outlined in the last section of this chapter.

1.2 Background

Hand rehabilitation is critical to enabling hand-injured patients to return to life and a livelihood[8–10]. Delivery of this service in South Africa often falls to inexperienced occupational therapists who work in challenging contexts[11,12]. The profession mandates that therapists respond in a client-centred and contextually relevant manner to the needs of their patients[13,14]. Both locally and internationally, therapists require support and development opportunities to rise to this challenge [11,15]. Little is known, however, about the specific support and development needs of generalist occupational therapists in challenging contexts,

such as those found in South Africa, and how they can sustainably be addressed to improve the management of hand injuries.

The importance of the hand and hand injuries

If we are to dedicate resources to developing the healthcare providers delivering hand-injury care, it is necessary to interrogate whether hand injuries constitute a sizable public health need. The hand was described by Aristotle as *the instrument of instruments*[16], yet injuries to the hand have received poor recognition in public health agendas[17]. The hand is inextricably linked to participation in work, community and family life[8]. Even a minor hand injury to the so-called 'earning tool'[18] can be devastating[9,17], especially when it removes an individual's chance of earning a livelihood[10]. As global health agendas begin to acknowledge the importance of prioritizing injuries in general in health services[19], attention given to hand injuries needs to change[20,21].

The epidemiology of hand injuries

Appropriate responses by healthcare providers to an injury burden can only be generated if the extent of the problem is perceived, the causes of injury are understood, and the populations affected are delineated. Literature suggests that hand injuries are common, accounting for approximately 20% of injuries presenting at hospital emergency units[22]. In two high-income countries, 29% of all unintentional injuries were reported to be hand injuries[23], and the incidence is likely to be higher in low-to-middle-income countries (LMIC)[18].

A recent systematic review of hand injuries in LMICs acknowledged the gap in hand injury data but described the burden as being substantial and increasing[21,24]. The prevalence of hand injuries in South Africa is not known. However, 17 000 hand-injured patients are seen yearly at just one of the country's hand surgery units[25]. Although quantifying the burden of hand injuries in LMICs is still required, sufficient evidence exists for hand injuries to be considered a public health priority[20,21,26]. Scholars have thus called for hand injury care solutions that are 'adequately informed' with a 'collection of local knowledge'[27(p.1080)] being sourced before solutions are developed.

Causes of injury must be understood in order to plan such intervention. Occupational injuries and road accidents are leading causes of hand injury in LMICs[25,28–30]. In contrast to other countries, interpersonal violence[25,31] is central to the burden of hand injuries in South Africa. Road accidents[31] and workplace injuries/conditions[32,33] also contribute significantly to the burden. In most LMICs, most hand-injured patients are male (between 74.1% and 95%)[18,28,30,34–37], although a somewhat smaller difference in gender distribution (59% male) has been reported in high-income countries[23]. In South Africa, substantially more males than females have been reported to be affected by occupational injuries (88.5% male)[29]. Young adults are most likely to sustain hand injuries[18,28,30,34–37], although this varies according to condition[38]. Understanding that a majority of hand injured patients are economically active breadwinners[29] informs the type of services offered by therapists. Understanding the causes of injury makes obvious the need for injury prevention programs identified by a growing body of hand-injury literature [18,23,28,29,36,37,39–41]. However, the need for prevention will never eclipse the need for appropriate treatment[20,42], and appropriate personnel training and support is required for this[15,16,27].

The cost of hand injuries

The impact of hand injuries often extends beyond individuals to families and communities, in turn increasing the burden on state health care and social security[43]. Although Siotis *et al.* (2018) found limited information on the cost of hand injuries in LMICs specifically, a recent systematic review attempted to estimate the direct (medical costs), indirect (due to lost work time) and intangible costs of hand injuries. Little evidence was found on the latter, but a mean of 6951 USD was calculated per injury for medical and lost productivity expenses[26]. Hand rehabilitation is central to enabling sufficient functional recovery for patients to return to work and productivity[8–10] and is thus critical to reducing the overall cost of hand injuries. However, adequate capacity building for this challenge is necessary for South African therapists[44] and hand-injury care experts suggest that "often what is required is not manpower or infrastructure but access to help and support"[27(p. 1081)] for service delivery.

Healthcare for hand-injured patients

Understanding the current state of health care for hand-injured patients is necessary. The global availability and quality of hand injury care varies considerably according to

context[22,27,45]. Access to quality healthcare, in general, is uneven across South Africa, with the majority of healthcare resources servicing a minority of citizens[43]. This pattern appears to be similar for hand-injury care services. Evidence suggests that hand care expertise is concentrated in the country's private sector and the urban provinces[46]. Furthermore, most hand conditions are treated by health professionals who are not sufficiently trained in hand injury management[9]. Rehabilitation staff turnover in the public sector is reportedly high, with therapists moving into the private sector after obtaining a few years of experience[47]. This is likely the same within hand rehabilitation as most therapists with more than five years of experience work within the private sector[48]. The lack of experience and expertise retained in public rehabilitation departments has detrimental and retarding effects on service delivery[47].

Support and development strategies have been proposed to retain therapists in the public sector[49], which is noteworthy when considering the cadre of therapists required to deliver hand rehabilitation in South Africa. Hand rehabilitation is commonly considered an area of practice that requires specialized skill[50,51]. However, services to rural and underserved communities in the South African public sector may often be delivered by novice, generalist occupational therapists with limited experience in settings and poor support, supervision and resources[11,12].

Scholars from other low-to-middle income countries (LMICs) have called for the introduction of a hand rehabilitation specialization within their countries[52,53]. However, this may not go all the way to addressing the national need for hand rehabilitation, even within high-income contexts where specialisation opportunities exist. Hand rehabilitation coverage is restricted to better-resourced areas[54], and generalist therapists in rural and remote areas are reported to lack appropriate support, supervision and development opportunities to enable them to treat hand-injured patients effectively[15]. Many South African occupational therapists similarly experience this lack[11]. South African rehabilitation policy prioritizes occupational therapy posts at community, primary and district levels of care[55]. Here, therapists must work as generalists, attending to clients and communities with diverse health needs, including hand injuries. Therefore, developing appropriate support and development strategies for this group of therapists is essential.

1.3 Community input into research concept refinement

McKenna and Main (2013) state that it is essential for "researcher and community interests and priorities to coalesce and shape all stages of the research and dissemination process"[56(p. 113)]. In seeking to appreciate the principles of Community Engaged Research (CER) and pursue collaborative research efforts, the proposed research project was presented to various stakeholders, key informants and hand rehabilitation experts between March and July 2019. Details of the refinement process and changes made can be found in Appendix B.

1.4 Problem Statement

Hand injuries are common in South Africa, and safe and effective hand rehabilitation is critical to appropriate care[27]. By necessity, this care is delivered by non-specialist occupational therapists working in challenging settings, despite hand rehabilitation commonly being considered a specialist area of practice[50]. In order to allow hand-injured patients to return to full participation in daily life, including participation in economic activity[18], it is necessary to describe *what* the support and development needs of these non-specialist occupational therapists are and *how* these can be met effectively and sustainably.

1.5 Justification for the study

Little is known about the support and development needs of the generalist occupational therapists who are responsible for delivering hand rehabilitation to a large majority of South African hand-injured patients. Rehabilitation is fundamental to achieving the third Sustainable Development Goal ("ensure healthy lives and promote well-being for all at all ages"[57(p. 2)]) and is integral to the healthcare package endorsed by the State[43,58]. As demonstrated above, hand injuries can severely restrict individuals' ability to earn a living and participate in life, with substantial economic impact at multiple levels. Hand-injury care scholars emphasise that solutions to improve hand-injury care need to be adequately informed by an analysis of need and tailored to local realities[27]. Capacity strengthening of rehabilitation professionals that is responsive to policy, local and international evidence, and the needs and experiences of both service users and service providers is needed.

The National Department of Health (NDOH) and professional organisations (e.g. South African Society of Hand Therapists, Occupational Therapy Association of South Africa, and Rural Rehabilitation of South Africa) can use the results of the studies to build and implement guidelines and strategies for generalist occupational therapists delivering hand rehabilitation. Evidence generated is valuable for informing capacity-strengthening interventions for effective management of other impairments (i.e. not just the hand) and can potentially be extended to other rehabilitation professional groups (e.g. physiotherapy and speech therapy). The study's results may inform university hand rehabilitation curricula and could assist in creating an understanding of what constitutes undergraduate and postgraduate competencies within the lifelong learning trajectory of occupational therapists practising in South Africa.

The results will inform further research into the effectiveness of the study's support and development interventions. The student has, and will continue to be, engaged with the NDOH to position the research to speak to policy development and implementation.

1.6 Significance of the study

The PhD study has produced *Guidelines for the Support and Development of Generalist Occupational Therapists Delivering Hand-injury Care in South Africa* (presented and discussed in *Chapter 10)*. These guidelines are based on the findings of a qualitative synthesis of relevant policy (Study 1 of this thesis), the support and development needs of service providers (generalist occupational therapists) extrapolated from two qualitative case studies (Studies 2A and 2B of this thesis), and the results of a consensus development conference in which evidence produced by this PhD study was triangulated with local evidence, and considered by a panel of stakeholders (Study 3 of this thesis). Beyond a South African application, the evidence generated by this research may assist hand rehabilitation service development in other LMICs where services remain underdeveloped, and hand rehabilitation delivered by specialists alone is unrealistic. Results have been disseminated through publications, local and international conference presentations, preliminary findings to the South African Society of Hand Therapists, and publications in peer-reviewed journals and a professional online magazine.

1.7 Research questions

This PhD study sought to answer the overarching question: How can the support and development needs of generalist occupational therapists delivering hand rehabilitation within the South African public health sector be met in a contextually responsive manner?

Three separate studies were conducted to answer this question. The questions posed in each of these three studies are as follows:

1.7.1 What guidelines are provided by local and international policy for hand rehabilitation services in South Africa? (Study 1)

1.7.2 How do generalist occupational therapists describe their experience of delivering hand rehabilitation in the South African public sector, what are their identified support and development needs, and how can these be met? (Study 2 A and B)

1.7.3 What contextually responsive strategies are required for the support and development of generalist occupational therapists delivering hand rehabilitation within the South African public sector? (Study 3)

Study 2 consisted of two sub-studies that explore the same research question with two groups of generalist occupational therapists, namely Community Service occupational therapists (Study 2A) and generalist occupational therapists practising as independent practitioners (Study 2B).

1.8 Research aim

The overarching aim of the PhD study was to describe how the support and development needs of generalist occupational therapists delivering hand rehabilitation within the South African public health sector can be met in a contextually responsive manner.

1.9 Study Approach

The PhD study consisted of several sub-studies. A multi-method research (MMR) approach, consistent with the PhD student's pragmatic research paradigm[59], was employed. This refers to research in which "different approaches or methods are used in parallel or sequence but

are not integrated until inferences are made"[60(p.112)]. Thus, each of the three studies in the PhD study employed separate study designs and methods.

Integration was facilitated during the consensus development process in Study 3 and is further achieved in the final integrated discussion chapter. Multi-method research may be performed "from either one or two paradigmatic standpoints"[60(p.119)]. A predominant *qualitative approach* could be used within the PhD study, although some quantitative data may be gathered. The study's exploratory nature implies that the PhD's theoretical thrust was predominantly inductive[61], although deductive processes were employed where necessary[62].

A summary of the PhD process and timeline is illustrated in Figure 1.1, and a breakdown of the methodology and output (to date) of each of the sub-studies included in the PhD study are presented in Figure 1.2. While the guideline generation process was not implemented as a separate study in the PhD, it has been included in Figure 1.2 to demonstrate the logical progression of the PhD study towards the final output – *Guidelines for the support and development of generalist occupational therapists delivering hand-injury care in the South African public health sector.*

PHD PROCESS AND TIMELINE

Research question: How can the support and development needs of generalist occupational therapists delivering hand-injury care within the South African public health sector be met in a contextually responsive manner

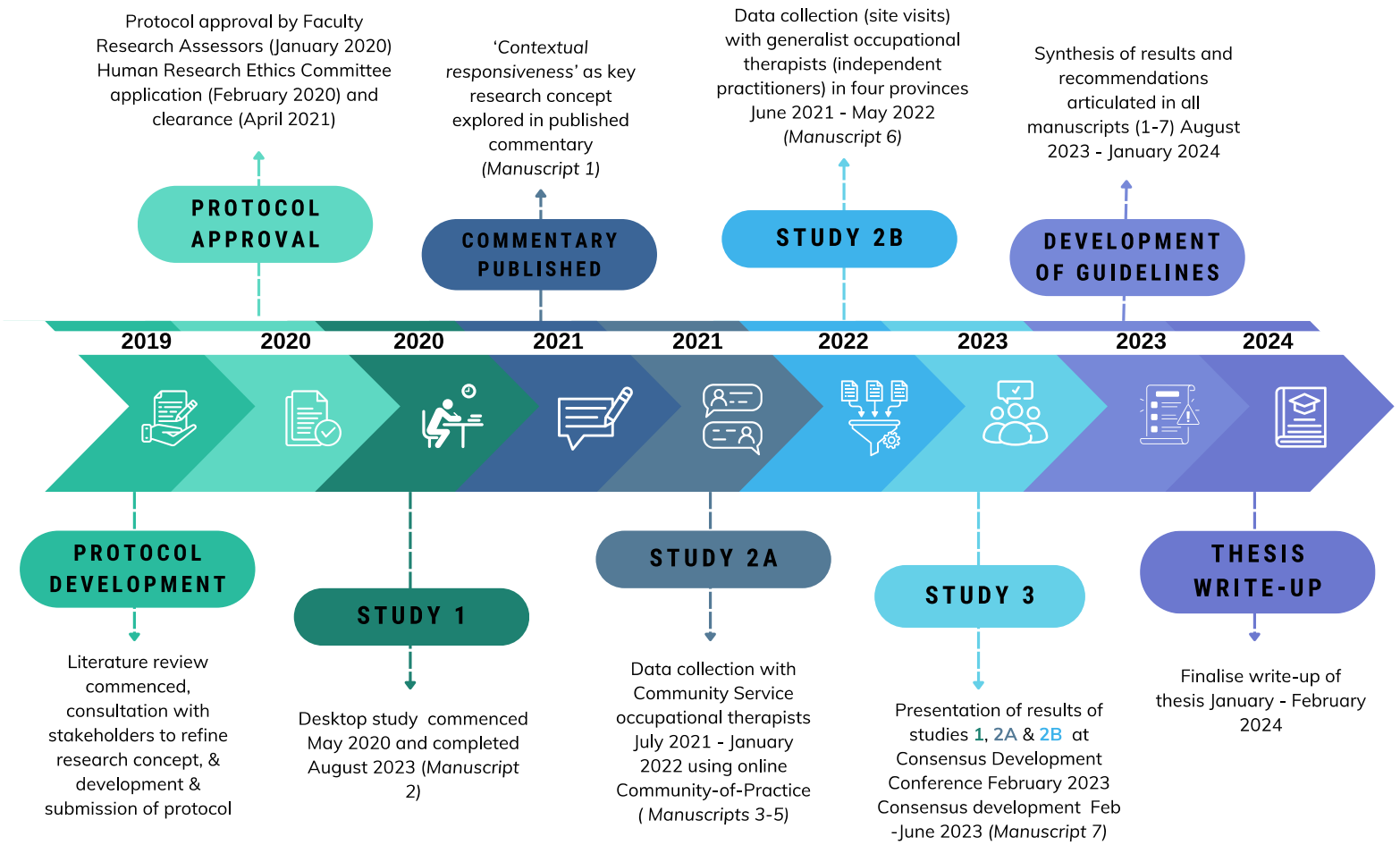


Figure 1.1: Infographic of the PhD process and timeline

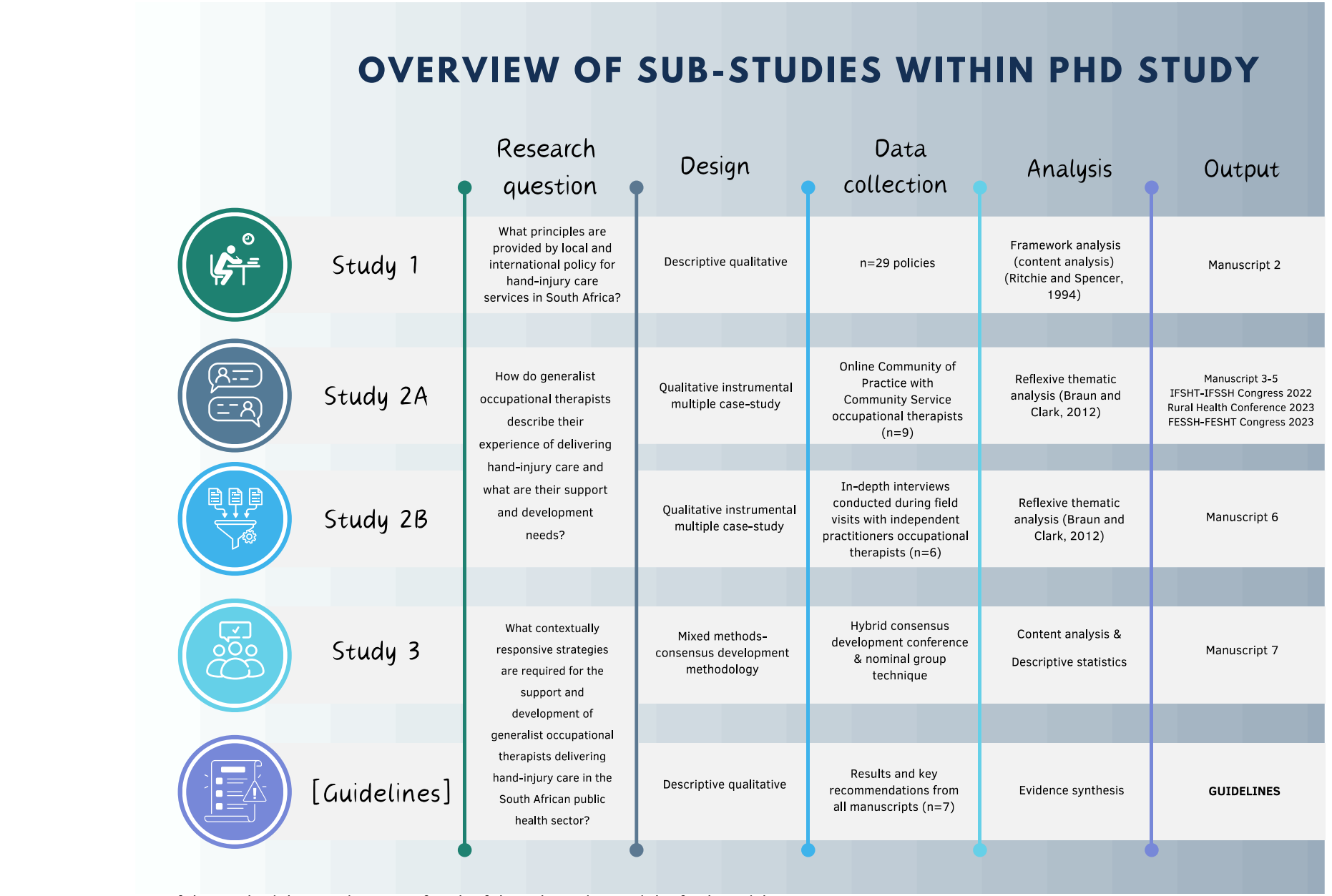


Figure 1.2: Overview of the methodology and output of each of the sub-studies and the final *Guidelines*

1.10 Positionality

My experience delivering hand rehabilitation as a novice practitioner in 2006 shaped my interest in the research topic. Subsequent clinical work within a hand surgery unit and a decade of hand rehabilitation research shaped my understanding of hand injuries' social determinants and consequences. A strong sense of social justice, situated within my worldview, has further influenced research towards equitable access to quality healthcare and the needs of the practitioners who are integral to this. The South African healthcare context has a history of systemic oppression. Therefore, as a white female, English-speaking researcher and educator, my justice-driven approach runs the risk of perpetuating paternalistic postures, necessitating reflexive thought and ongoing recalibration of my posture and bearing.

Underpinned by constructivist assumptions, I take a pragmatic approach to research. This pragmatism has been influenced by my exposure to diverse theoretical positions, including early undergraduate exposure to critical perspectives in qualitative inquiry and my experience of more post-positivist assumptions from work within clinical settings. This diversity of perspectives is mirrored and has been reinforced by the different research paradigms of each of my three thesis supervisors. Occupational therapy theory has also contributed a lens through which I have approached the research question: appreciation of the person, environment, and occupation transaction as a core occupational therapy assumption [63,64] has strongly guided data collection and analysis.

While pragmatism is an authentic approach for me, it is not always comfortable. Motivated to draw on diverse perspectives to enhance and develop holistic hand therapy practice, pragmatism enables me to 'straddle' the world of theory and practice, clinician and researcher, qualitative and quantitative, constructivist and positivist. However, I also experience this position as lonely- belonging fully on neither side of the paradigmatic spectrum. I also need to acknowledge the limitations of pragmatism that 'excuses itself' from engaging with theoretical integrity by privileging 'getting the job done'. While the robustly developed guidelines developed by this thesis are evidence of the latter representing the 'practical wisdom'[65(p.274)] of pragmatism, they are also undergirded by a rigorous research

process. However, this does not negate the need for ongoing reflexivity in implementing these guidelines and future research work.

1.11 Orientation to the structure of the thesis

A divided block format has been used because the thesis was completed via publication. As listed in Table 1.1, the first two chapters consist of the introduction *(Chapter 1)* followed by a presentation of the PhD study's conceptual framework and a review of the literature (*Chapter 2)*. Following this, each of the manuscripts from the PhD study is presented in a separate chapter in a manuscript format. This includes a published commentary *(Chapter 3)* and a manuscript prepared for submission to the practice forum of a journal *(Chapter 7)*. The other manuscripts contain an introduction, methodology, results, discussion, and conclusion section.

Table 1.1: Overview of Chapters

	Title of Chapter	Focus
1	*Introduction*	Background of study
2	*Literature Review and Conceptual Framework*	Literature and concepts
3	Published Commentary *(Manuscript 1)*	
4	Manuscript in submissable format *(Manuscript 2)*	Study 1 (policy study)
5	Published article *(Manuscript 3)*	Study 2A (experiences and needs of Community Service occupational therapists)
6	Article accepted for publication *(Manuscript 4)*	
7	Manuscript in submissable format *(Manuscript 5)*	
8	Manuscript in submissable format *(Manuscript 6)*	Study 2B (experience and needs of Independent Practitioners)
9	Manuscript in submissable format *(Manuscript 7)*	Study 3 (Consensus development study)
10	*Integrated Discussion*	Discussion and Guidelines
11	*Conclusion*	Conclusion and overarching recommendations
	References	
	Appendices	

Chapter 1: Introduction

This chapter orientates the reader to the problem under investigation and highlights the evidence gap into which the PhD study has been positioned. The research questions are described, and the significance of the study is outlined.

Chapter 2: Literature Review and Conceptual Framework

The project's conceptual framework describes the theoretical constructs on which the PhD study is built and illustrates how the various studies, as well as an embedded MSc project,

contribute to answering the research question. The nature of the PhD study required that extensive bodies of knowledge across diverse areas of the literature be reviewed. This chapter seeks to cover the breadth of topics relevant to all of the studies, critically discussing what is already known, gaps in the evidence and how this study is positioned in relation to this.

Chapter 3: Commentary: Contextual Responsiveness

> Citation: van Stormbroek K, van der Merwe TR. Becoming contextually responsive: taking hold of a shared vision for our profession. *South African Journal of Occupational Therapy*. 2021 Dec; 51(4): 54-61.

The first publication is a commentary that discusses the meaning and application of *contextual responsiveness,* a key concept in this PhD study and an imperative for occupational therapy practice. The piece introduces concepts relevant to the discussion of contextually responsive hand-injury care in South Africa and contributes to local scholarship.

Chapter 4: Policy-based Principles for Hand Rehabilitation (Study 1)

> Citation: van Stormbroek K, van der Merwe TR, Myezwa H, O'Brien L. Developing policy-informed principles for rehabilitation using a model of care framework: a hand therapy example in a Global South context.

Contextual responsiveness encompasses an intentional attendance to policy. This chapter presents a manuscript in submissible format of the first study that sought to develop policy-based principles for hand rehabilitation delivered by occupational therapists in South Africa.

Chapter 5: Study 2 A: Novice participants' support and development needs (Study 2A)

> Citation: van Stormbroek K, van der Merwe T, O'Brien L, Myezwa H. "Surthriving" Hand Rehabilitation: Proposing Interventions to Support Novice Occupational Therapists Working in Underserved Contexts. Occupational Therapy International. 2023 Dec 14;2023.

Responding to the experiences of generalist occupational therapists is integral to generating guidelines for this group's support and development. This chapter presents the published manuscript of Study 2 A describes the experiences of community service occupational therapists delivering hand injury care in the South African public sector, and proposes strategies to respond to their support and development needs for hand-injury care.

Chapter 6: Participants' Experience of a Virtual Community of Practice (Study 2A)

> Citation: van Stormbroek K, van der Merwe TR, Myezwa H, O'Brien L. "Virtual Communities of Practice for novice occupational therapists: a vehicle for learning, support and professional identity strengthening?" Rural and Remote Health. 2(24); 2024.

This chapter presents a manuscript accepted for publication that reports on participants' experience engaging in a virtual community of practice (VCoP) in Study 2A. While the VCoP was designed to be a data collection tool, it provided a rich source of support and learning and provided key insights into the support and development needs of novice generalist therapists and VCoPs as a vehicle for meeting these needs.

Chapter 7: Practice Innovation (Study 2A)

> Citation: Button A, de Kock Z, Folly A, Holman L, Palmer D, van Aardt J, Joubert W, Westig M, van Stormbroek K. Hand therapy-on-the-move: a practice innovation for taking therapy to harder-to-reach communities.

This chapter presents a manuscript in submissible format of a practice innovation I developed with the Study 2A participants (n=9). The manuscript has been prepared for submission to the practice forum of the Journal of Hand Therapy.

Chapter 8: Independent Practitioners' support and development needs (Study 2B)

> Citation: van Stormbroek K, van der Merwe TR, Myezwa H, O'Brien L. 'A different ball game': responsive capacity strengthening for hand rehabilitation in resource-constrained contexts

The second group of occupational therapists delivering hand-injury care whose experiences and needs the PhD study sought to respond to was that of independent occupational therapy practitioners (fully-registered therapists) working in a generalist capacity. This chapter presents Study 2 B as a manuscript under review that describes the experiences of generalist occupational therapists (independent practitioners) delivering hand injury care in the South African public sector and proposes strategies to respond to their support and development needs for hand-injury care.

Chapter 9: Achieving Consensus on Generalist Therapists' Support and Development Needs (Study 3)

Citation: van Stormbroek K, O'Brien L, van der Merwe TR, Myezwa H. Strengthening capacity for universal basic hand therapy in South Africa: a consensus development study

This manuscript, in submissible format, reports on the results of the consensus development study (Study 3). The study sought to synthesise the evidence generated in Studies 1 and 2 with a broad range of evidence from diverse contributors. The evidence was presented at a consensus development conference and considered by a panel of stakeholders. Contextually responsive strategies for supporting and developing generalist occupational therapists delivering hand injury care in the public sector were generated from the consensus development process.

Chapter 10: Integrated Discussion

This chapter provides an integrated discussion of the main findings contributed by each of the seven manuscripts. A systematic approach to synthesising the evidence generated by each study is described, and eleven guidelines are presented and discussed.

Chapter 11: Conclusion

The concluding chapter revisits the study questions, the main findings of each study and the guidelines developed by the project. The PhD study's implications for practice, learning and development, leadership and management, research, and policy are outlined.

References

The reference list of texts cited in the thesis is presented. These exclude the reference lists for the published articles in Chapters 3 and 5 that contain their reference lists.

Appendices

All the study appendices are presented in this section.

CHAPTER TWO: Literature Review and Conceptual Framework

2.1 Introduction

Evidence is needed to inform support and development strategies for generalist therapists delivering hand-injury care in the South African public sector. This PhD study aimed to identify these therapists' support and development needs and investigate *how* these needs can be met in a contextually responsive manner. This chapter provides a critical review of the literature that has informed the refinement of the research questions and will discuss the evidence relevant to the overall study.

The chapter begins by describing the research gap this PhD study aimed to fill. A concept map that orients the reader to the study's theoretical positioning follows this. *Contextual responsiveness*, one of the key concepts in this thesis, is briefly discussed, followed by an exploration of *lifelong learning*, the process through which therapists develop as professionals to provide contextually responsive therapy. Literature that explores how expertise and competence develop is then reviewed. Key support and development strategies that facilitate the development of expertise and enable lifelong learning are reviewed and critiqued, including continuous professional development, mentorship, supervision, reflection, and communities of practice. Finally, under the Methodological Considerations, the rationale behind choosing a qualitative case study approach for Study 2 and a hybrid of consensus development methodologies for Study 3 is discussed.

Literature searches were conducted at intervals throughout this PhD study. An initial draft of the chapter was written based on a search undertaken between March and October 2019. Further chapter development occurred in November 2020 and August 2021 and was updated in September 2023. Online databases and search engines included Academic Search Ultimate, Africa Wide Information, CINAHL Complete, Global Health, Health Sources: Nursing/Academic Edition, Medline, and Google Scholar. I reviewed each search result and retrieved and read relevant articles. In addition to this, the reference lists of articles were used to identify key sources of evidence. A literature review matrix was created to organise literature into topic areas and to document key findings, concepts, limitations and evidence

gaps. The matrix then guided the review contained in this chapter. When reviewing the literature, an attempt was made to balance the *breadth* of relevant bodies of literature and the *depth* of the review for each topic. The former was , by necessity, prioritised in this chapter, while the latter is achieved in the literature review sections of the manuscripts of each of the three studies.

2.2 The Research Gap

Contextually responsive support and development strategies are required for generalist occupational therapists delivering hand-injury care for patients in South Africa with or at risk of hand injuries. Hand injuries are common in South Africa due to interpersonal violence[25,66], road accidents and work-related injuries[32]. Hand rehabilitation is essential to enable patients who have sustained injuries to their hand, or "earning tool"[18(p.15),] to return to participation in life and a livelihood[8–10]. Most hand rehabilitation services exist within the country's private health sector[46]. Occupational therapists who deliver hand rehabilitation within the public health sector typically do this in a generalist capacity, with limited expertise[9], supervision and support, resources and equipment[67]. Generally considered a specialist area of practice[50], trajectories for developing hand rehabilitation expertise exist for those practising in a specialist capacity. However, support and development opportunities to develop the expertise and capacity of generalist occupational therapists to deliver hand rehabilitation are urgently needed to respond to the contextual demand for this[68]. Against a backdrop of complex socio-political history and persistent healthcare inequalities[69], it is imperative that these support and development strategies are contextually responsive. The latter concept includes being responsive to past and present socio-political realities, responsive to policy, the needs of service providers (occupational therapists), service users (patients with or at risk of hand injury) and various stakeholder groups.

What *is* known is that a significant burden of hand injuries exists, that hand rehabilitation is critical to appropriate care[27], and that generalist occupational therapists are primarily required to meet this need under difficult practice realities[67]. What is not yet known is the support and development needs of these therapists and how these needs can be met in a contextually responsive manner. This is the evidence gap that this study sought to address.

Concepts that capture how this study was positioned to address this gap have been mapped and are introduced in the study's conceptual framework.

2.3 Conceptual Framework

A conceptual model, or tentative theory, is critical to planning well-designed research[70]. In this section, the study's conceptual framework is presented. Discussed under the subheadings below, concepts that relate to *the demand for contextually responsive therapy* are introduced to understand the study context. *Rising to the challenge* outlines concepts relating to the response of generalist occupational therapists, and *support and development strategies* speak to strategies for optimizing this response. Where concepts from the conceptual framework are mentioned in the text, they will be italicised to alert the reader to reference Figure 2.1. Finally, the positioning of the research study in relation to these concepts is explained. Evidence related to the most critical concepts is discussed in subsequent sections of the chapter.

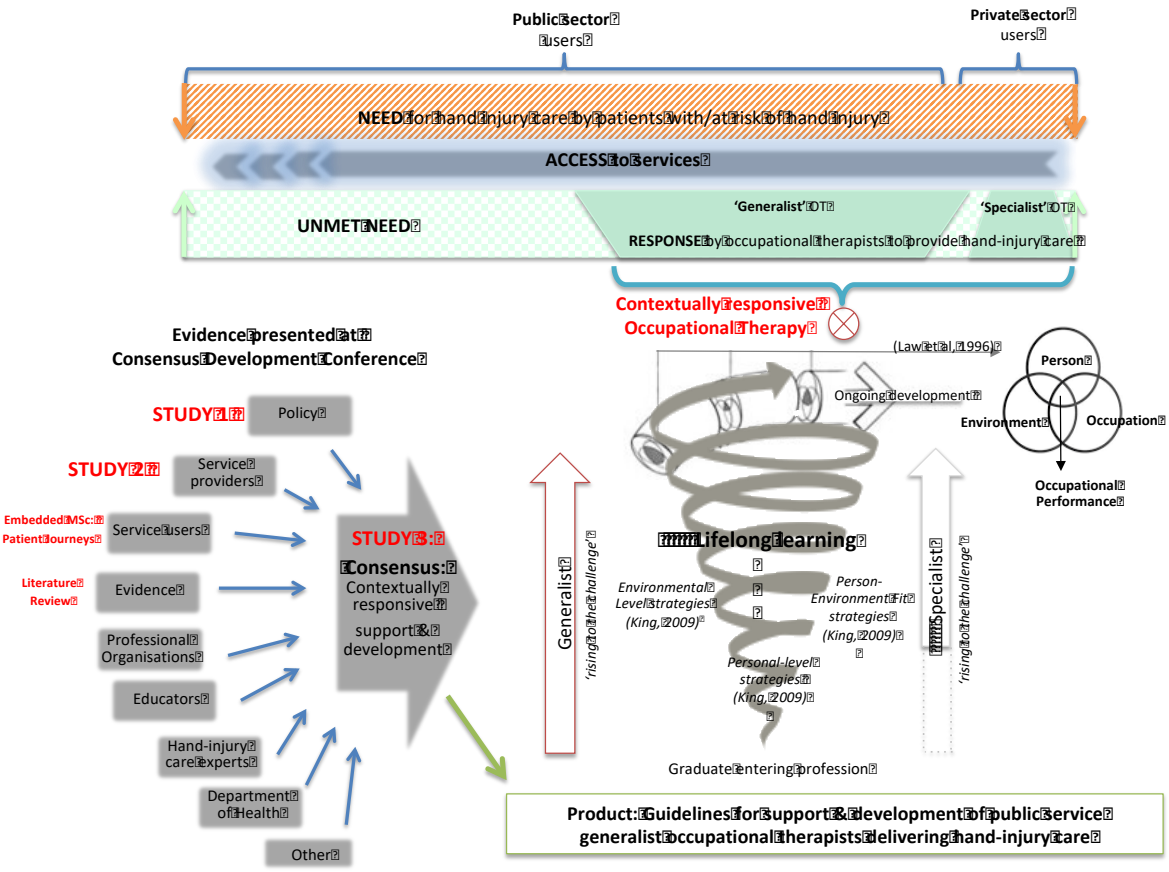
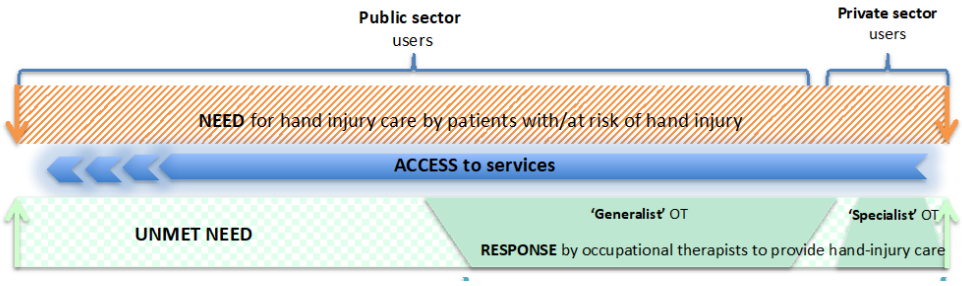


Figure 2.1: Conceptual Framework: Developing contextually responsive support and development strategies for generalist occupational therapists delivering hand-injury care.

2.3.1 The demand for contextually responsive therapy



The concepts related to extending access to *contextually responsive* occupational therapy for hand-injured patients in South Africa have been mapped in Figure 2.1. The substantial *need*[11] *for hand-injury care by patients with or at risk of hand injuries* in South Africa (orange block) illustrates the contextual demand for hand-injury care services. The majority of this group depends on the *public healthcare sector,* with a small proportion having access to *private* healthcare services (blue curly brackets). This population demands occupational therapists to deliver hand injury care (downward orange arrows). The response of South African

occupational therapists to this demand is illustrated by the green block bordered by upward green arrows. *Specialist* occupational therapists (small green quadrilateral) who work almost exclusively with hand-injured patients are part of this response. They typically have post-graduate training in hand rehabilitation and predominantly work within the private sector. Occupational therapists working mainly within the public sector (larger green quadrilateral) are often required to treat hand-injured patients as part of a diverse *generalist* caseload. With as few as 1.9 therapists per 100 000 population in the public sector[71], it can be assumed that *unmet needs* remain prevalent (chequered green area). As a product of these and numerous other factors, *access* to services (thick blue arrow) needs to be appreciated.

2.3.2 Rising to the challenge: the Person-Environment-Occupation transaction

The preparedness of therapists to meet needs within this system must be considered for this study. The bottom-right diagram demonstrates the spiral trajectory of *lifelong learning* that both *specialist* (grey vertical arrow) and *generalist (red vertical arrow)* therapists may follow, beginning as new graduates at the base of the spiral. These therapists have the potential to progress upward by developing expertise to a position in which they can respond to the need for *contextually responsive occupational therapy* (red circle/target).

At the apex of the spiral, a continuum of three intersecting circles can be seen, reflective of the Person-Environment-Occupation (PEO) Model[63] (a cross-section of the transaction is positioned to the right of the spiral). This model is commonly used by occupational therapists to conceptualise the occupational performance and participation of their clients, but it is also used in this study to conceptualise therapists' participation in hand injury care and their lifelong learning continuum. Ann Wilcock, an occupational therapist to whom seminal occupational science work is credited[72], has called for the profession to not only view clients as occupational beings but for this perspective to define teaching and learning in occupational therapy education[73]. This supports the use of a conceptual framework for occupational therapy for this thesis. Numerous occupational therapy models and conceptual frameworks exist that enable this, including the Kawa Model, Occupational Adaptation Theory and the Canadian Model of Occupational Performance and Engagement[74]. The PEO Model[63] has been chosen as its simplicity in describing the relationship between the person, environment, and occupation speaks to the philosophical position outlined in the South

African Minimum Standards for the Education of Occupational Therapists[14], which focuses on the education of 'entry-grade' or generalist practitioners. Despite its seeming simplicity, the model acknowledges the complex and dynamic nature of the transaction[75] between the three macro components: the *person, environment* and *occupation.* In addition, the model identifies intervention as targeting any or all of these components. It also guides 'intervention in context at various levels of the environment'[63(p.18)], making the model well-suited to frame this study.

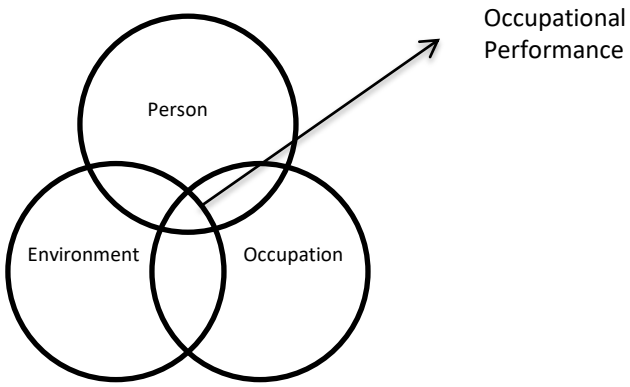


Figure 2.2: The Person-Environment-Occupation Model[63]: a cross-section of the continuum

The PEO, as illustrated in Figure 2.2, conceptualises occupational performance as being the product of the dynamic transaction between the person (P), environment (E) and occupation (O). The *person* refers to a holistic view of a unique being, engaging in numerous roles which change over time. The person brings life experience, attributes, competencies and skills to the PEO transaction. The *environment* is viewed from multiple perspectives (community, neighbourhood, household, and individual) and considers socio-economic, institutional, cultural, social and physical environmental features equally. The Model does not overtly consider socio-political factors impacting the transaction, which may be essential to consider in the South African context. Additional occupational science theory that acknowledges this contextual force will thus be drawn on. Engagement in *occupation* is embedded within the person's roles and multi-faceted environment. *Occupation* is conceptualised as "groups of self-directed, functional tasks and activities in which a person engages over a lifespan" [63(p.16)]. The "Person" (P), "Environment"(E) and "Occupation"(O), applied to this study, refer to *generalist occupational therapists (P) working in a complex healthcare context (E)*, *delivering care to patients with or at risk of hand injury* (O).

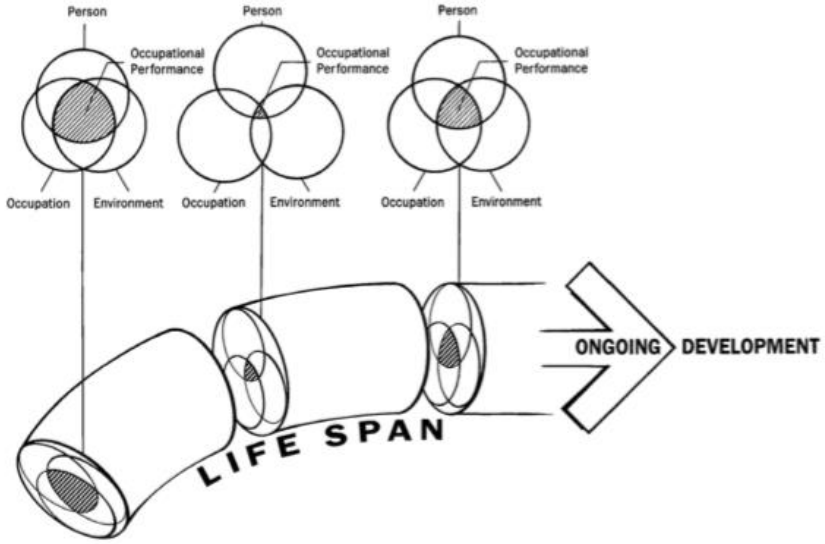


Figure 2.3: Law and colleague's Person-Environment-Occupation Model across the lifespan continuum demonstrating varying occupational performance as a function of the *person, environment* and *occupation* congruence [63 (p.15)]

The overlap between these three elements is the "dynamic and complex phenomenon", *occupational performance (OP)*. This transactional space represents "the dynamic *experience* of the person engaged in purposeful activities and tasks within an environment" [63(p.16)]. The model assumes that the three components transact rather than merely interact: the latter assumes interaction between the discrete characteristics of the *person* and *environment* in a linear, cause-effect manner. The transactional view of the *PEO,* however, assumes an interdependence of *person* and *environment* and postulates that "behaviour is influenced and cannot be separated from contextual influences" [63(p.10)]. The transactional view of the model implies that the context changes continually, thus demanding changes in behaviour to achieve occupational performance goals. In this study, OP represents *the dynamic experience of delivering hand-injury care as a generalist occupational therapist* in this study. Figure 2.3 demonstrates how, due to the dynamic nature of the transaction, occupational performance changes over time, with greater or lesser congruence being achieved. Occupational performance can be enhanced by changing to any (or all) of the three circles (components) to maximise congruence between the person, their environment and their occupation. This research study sought to develop evidence to inform support and development strategies that focus on any or all of the three components to optimize the goodness-of-fit and, thus, generalist therapists' experience of delivering hand-injury care.

2.3.2 Support and development: strategies to optimise goodness-of-fit of the P-E-O

A poor fit between therapist (P), environment (E) and therapeutic tasks and activities (O) will hamper occupational performance and, by implication, the process of development towards contextually responsive care. However, improved congruence or overlap between the three elements can be facilitated. As indicated on the spiral *lifelong learning* trajectory, various *personal-level*[64]*, environmental level*[64]*,* and *person-environment fit*[64] learning-based strategies can facilitate progress along the spiral trajectory as it promotes the development of expertise. These strategies have been drawn from King's personal and environmental learning-based framework to foster therapist expertise[64]. The framework is built on learning and competence development theory and strategies described in the health science, education, and psychology literature. The framework describes personal, environmental and person-environment 'fit' strategies – resonating strongly with foundational occupational therapy theory[63]. Examples of activities that fit into King's three categories[64] include providing opportunities within the work environment for mentorship roles or offering multiple sources of feedback[64]. Additional strategies are explored in Section 7 of this chapter.

2.3.3 Positioning of the research study: how each study is situated

The map indicates that the main goal of the learning processes should be to enable therapists to deliver *contextually responsive* care. The latter concept warrants robust discussion, but aspects of its meaning have been incorporated into the structure of the study, captured in the conceptual framework (Figure 2.1). The needs of service users, service providers, policy matters and stakeholders' perspectives are graphically represented in the conceptual framework (blue blocks and arrows). The research aims to describe how the support and development needs of generalist occupational therapists delivering hand-injury care in the South African public sector can be met in a contextually responsive manner. *Study 1* is built on the assumption that being responsive to relevant *policy* is an essential aspect of constructing contextually responsive strategies. This sub-study in the PhD thus sought to develop policy-based principles for the support and development of generalist therapists delivering hand-injury care.

Study 2 assumes that contextual responsiveness considers the experiences and needs of therapists (*service providers)* required to deliver services. However, as indicated in the conceptual map, several other evidence sources and stakeholders should be considered to strengthen contextual responsiveness (blue blocks and arrows). An embedded study was conducted by one MSc student who explored the experiences of patients (*service users*) accessing hand-injury care services, and the PhD study's literature review guided the research in being responsive to local and international evidence.

Study 3 employed a consensus development conference (CDC) to develop a consensus of stakeholders on therapists' support and development needs. The evidence generated by Studies 1 and 2, as well as the embedded MSc, were presented at the conference. In addition, presentations from professional organisations, educators, hand-injury care experts, the National Department of Health and other parties with a vested interest in the study outcome were invited. A foundation for guidelines for the support and development of the above-described cadre of therapists was produced from an analysis of all the evidence presented at the conference and the deliberation of a consensus development panel. The Integrated Discussion *(Chapter 10)* systematically integrated the CDC findings and results from the other studies to produce eleven guidelines.

The concept map contextualises the need for hand-injury care and the needs of the therapists responsible for providing this care. The Person-Environment-Occupation Model[63] and King's Framework of personal and environmental learning-based strategies to foster therapist expertise[64] are used to theoretically frame the lifelong learning trajectory towards contextually responsive occupational therapy for hand-injured patients.

2.4 Contextual responsiveness

A central concept within this thesis is 'contextual responsiveness', a term often used as a descriptor in the literature rather than a well-defined concept. In basic education research, it is used to describe appropriate facilitation techniques for teacher development[76]. In 2006, Duncan and McMillan[77] described responsive occupational therapy curricula within South Africa as curricula that respond to the socio-political, economic and cultural context. This literature contributes to an understanding of the term, however, a more robust discussion of

what constitutes 'context' (i.e. *what needs to be responded to*) and what constitutes an appropriate 'response' (i.e. *how are we to respond to this*) is needed.

An opportunity was taken to explore the latter meanings in this study's first publication (*Chapter 3*). The South African Journal of Occupational Therapy extended a call in early 2021 for manuscripts for a Special Edition publication titled *Contextually Responsive Scholarship and Praxis of Human Occupation.* The invitation was accepted to engage with what this concept means, both for this study and to participate in important dialogue within the South African Occupational Therapy Academy. The commentary was submitted in May 2021 and, following revisions, was accepted for publication in September 2021.

Beyond discussing the meaning and posture of contextual responsiveness, the study's methods and structure have drawn on this concept. Firstly, the case-study methodology used for *Study 2* draws in a consideration of context[78]. Secondly, *Study 3* ensures that the findings and recommendations of this study are responsive to policy (*Study 1*), service provider needs and experiences (*Study 2*), patient experiences, literature and the perspectives of diverse stakeholders presented at the consensus development conference.

2.5 Lifelong learning

Lifelong learning has been conceptualised in this study as a topic central to progressing towards contextually responsive care. The concept was coined in the 1970's to capture a change in how education was understood and introduced the idea that learning continued beyond the childhood developmental years and the confines of formal education systems and institutions[79]. Though built on prior ideas, the 1972 Faure UNESCO report[80] "Learning to Be" is considered the first source describing lifelong learning, referring to it as lifelong education[79].

The UNESCO report was revolutionary in its position, suggesting that learning was emancipatory and available to all, regardless of age, race, and socioeconomic position[79]. Other international organisations used similar terms, including 'recurrent education' and 'education permanente'[79]. Schuetze[79] describes an in-depth history of the concept, which lends valuable insights into the context in which it developed in the early 1970s, mainly driven by international organisations.

Lifelong learning within health science literature takes on a much narrower, specific or pragmatic meaning. The term appears to be used interchangeably with continuous professional development in some literature[81,82], or these concepts are illustrated as overlapping[82]. It would appear that it is often not overtly defined within health sciences literature, although the competencies and practices that are part of lifelong learning are described[81,82]. In order to consider the lifelong learning of generalist occupational therapists, it is necessary to appreciate how competence and expertise develop, concepts explored in the next section.

2.6 The development of expertise and competence

Understanding how expertise and competence develop is important for appreciating the lifelong learning journey of therapists, but it is also essential when considering the support and development strategies required by occupational therapists for hand therapy practice. Definitions of both expertise and competence are numerous, and different disciplines offer a variety of perspectives. In this section, a range of seminal and more recent contributions from the literature are reviewed to identify key aspects of expertise and competence development that are relevant for consideration in this study. Learning-based strategies for developing expertise are presented, as these are important for considering the capacity strengthening of generalist occupational therapists delivering hand-injury care.

Competence speaks to a person's capacity to fulfil job responsibilities[83] and has been defined in the medical works of literature as "the habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of the individual and community being served"[84(p.226)]. The related concept of competency focuses a person's specific performance in a particular context[83]. The World Federation of Occupational Therapists defines competency as "being able to do what you are required to do safely and effectively"[14(p.68)] highlighting that competencies are both situation[83,85], and measurable. The recent Rehabilitation Competency Framework's definition of competency clarifies that competence can be measured through observing behaviours. The Framework defines competency as "the observable ability of a person integrating knowledge, skills, values and beliefs in their performance of tasks. Competencies are durable, trainable, and measurable through the expression of behaviours"[86(p. VII)].

Competence is closely related to expertise, and despite the complexity of these two concepts in the literature, they are sometimes used interchangeably[87]. Expertise may be defined as heightened knowledge or skill in a particular field[88]; however, its conceptualisation in the literature is far more complex[87]. Expertise may relate to a job, specific tasks or activities, or skills, knowledge or abilities[89]. Glaser and Chi sought to summarise the nature of expertise: they identified that experts typically excel in a specific domain (not across all/multiple domains), they work faster than novices and solve problems with less error, and they have superior long and short-term memory. While novices tend to tackle problems superficially, experts approach problems within their domain at a deep, principled level. They spend time seeking to understand the problem and analysing it qualitatively, while novices tend to jump to attempting solutions. Additionally, experts demonstrate self-monitoring skills and are more aware of their mistakes[90]. Demonstrating competency for hand-injury care in South Africa and developing a level of expertise matched to service demands is critical to the provision of quality care. Lifelong learning is the process that enables the achievement and maintenance of the required knowledge, skill and performance for practice[85].

Dreyfus and Dreyfus proposed five developmental stages of competence in 1980: *novice, advanced beginner, competent, proficient,* and *expert*. Benner later applied this model to the acquisition of skills in nursing and confirmed that nurses entering practice tend to rely on rules that do not account for contextual variation. More experienced nurses rely on intuition and prior experience with similar presentations[91]. This influential conceptualisation highlights experience as an essential variable in developing competence. Kuhlmann and Ardichvili's summation of the Dreyfus and Dreyfus model also posits that expert performance requires 'talent' in addition to time and experience[92]. This perhaps relates to the genetic component of expertise highlighted more recently in literature[93]. Rischel, Larsen, and Jackson's study of competence in nurses revealed that experience alone could not account for nurses' competence, with some nurses demonstrating skills far above or below their expected competence, given the extent of their experience. They argue that the situation interacts with competence and that personal capacity and characteristics, such as embodied dispositions, interact with contextual features to influence competence development.

Another well-known model used to understand the development of competence is the four stages of competence model, credited to various authors. This hierarchical model suggests a

step-wise progression to mastery from *unconscious incompetence, conscious incompetence, conscious competence* and finally *unconscious competence.* Unconscious incompetence is explained by the Dunning-Kruger effect, where a novice cannot accurately judge their competence in a specific area[94]. In a study investigating novice occupational therapists' perception of their competence for hand therapy practice, an unexpectedly high proportion (71%) reported feeling competent. The researchers interpreted this as likely being an example of unconscious incompetence[11]. A commentary written by Keeley[94] suggests that 'the unconscious and incompetent medical practitioner is a very dangerous one that needs careful monitoring'. This statement has potentially controversial implications for healthcare in South Africa, where novice health professionals are sent to underserved contexts where they frequently practice without direct supervision. Beyond the effects of time and experience, Keeley[94] highlights the role that personality traits have on the development of competence: when driven individuals become aware of their incompetence, they harness learning resources in their environment, while non-driven individuals who do not recruit these resources and their competence tends to plateau.

In addition to time, experience, personal characteristics, and contextual features, Kuhlmann and Ardichvili describe the work of Bereiter and Scardamalia, who propose that the quality of experience (not the hours of experience alone) is essential. Similarly, they use the work of Ericsson to highlight that practice needs to be 'just-right' for where the individual is at in their development and that repetitive practice needs to stretch capabilities[92] rather than maintain them. Kuhlmann and Ardichvili's qualitative work focuses on the development of expertise in tax practitioners and highlights personal characteristics, environmental opportunities, and fortuitous opportunities to develop. They highlight the value of complex cases for developing expertise but also show that this exposure does not ensure expertise development. The researchers highlight the potential benefits of non-routine/complex work, willingness to work hard, interest and fascination with the subject matter, and an enjoyment of uncertainty.

Klein studied expertise development for decision-making and sought to identify strategies exemplified by experts to support thinking and learning for decision-making. Recognising patterns, making fine discriminations between typicality and anomalies, mentally simulating future or past states, and adapting and improvising are all features of expertise in decision-making. He further proposed several strategies for developing expertise in decision-making.

Strategies include deliberate practice (with a goal and evaluation criteria), attentional control exercises to practise flexibility in appraising situations, testing alternative task strategies, building mental models and obtaining timely and accurate feedback, coaching and reflecting on experiences to learn from these[95]. Guest, Regehr and Tiberius echo these recommendations and highlight the importance of a healthy dissatisfaction with current performance. Arising from reflection and self-assessment with current performance, this discontent fuels a work attitude that drives ongoing investment in improvement[96].

In addition to understanding how expertise develops, it is necessary to identify the level at which a learner is performing to facilitate their development. Many scholars have identified characteristics of the proposed phases of expertise development and instructional strategies for these. These have been summarised in Table 2.1. The novice practitioner is typically anxious and dependent on prescriptive information to guide their action. Although anxiety may still be experienced with decision-making, the advanced beginner has started conceptualising and categorising their knowledge and is increasingly comfortable with familiar cases. The comfort of being a competent learner enables the individual to perceive and process information that enables them to be holistic and respond to changing needs. Consistent patterns of thinking and action are followed, and new problems are engaged. The proficient learner shows additional confidence and efficiency in deftly appraising and sorting information and selecting actions against an understanding of practice principles and alternative actions. Intuitive action characterises the skill of the expert who acts automatically and naturally takes responsibility in a practice setting.

Table 2.1: Characteristics of learners at various stages of expertise development

Stage	Typical characteristics	Instructional strategies
Novice	• They don't know what they don't know[97] • High anxiety levels[97] • Rigid adherence to rules[87] • No discretionary judgement and little situational perception[87] • Spends time memorising information[93]	• Require direct supervision[97] • Develop professional knowledge base[97] • Provide straightforward cases with no extraneous information[93] • Provide feedback[93] • Balance step-by-step instruction with freedom[93] • Reinforce basic science (foundational) knowledge[93] • Help learner organise their knowledge[93] • Contextualise learning[93] • Assist learners to discriminate features[93]
Advanced beginner	• Notice recurring situational themes & issued[97]	• Use of deliberate practice and reflection[97] • Focus on clinical reasoning and judgement

	• Begins to see contextual features of learning [93] • Learning remains in silos[93] • Increasing comfort making decisions around familiar situations[93] • Difficulty differentiating between pertinent/non-pertinent information[93] • Provides partial solutions to unfamiliar/complex situations[93] • Anxiety about decision making[93]	[97] • Manage anxiety[93] • Provide increasingly complex scenarios requiring integration of extraneous information[93] • Expose learner to uncommon cases[93] • Make connections with/for students[93] • Focus on 'why' decisions are made[93] • Provide specific & targeted feedback[93] • Use 'near-peer' coaches[93]
Competent	• Sees and treats patient holistically[97] • Responds to emerging needs[97] • Develops conscious & deliberate planning [93] • Follows consistent routine and procedure and develops guidelines[93] • Can make decisions with new problems[93]	• Focus on ethical affect, demeanour and professional formation[97] • Supportive coaching[93] • Manage emotions[93] • Provide authentic & complex learning experiences[93] • Encourage explanations of 'why' decisions and follow through in gut reactions[93] • Encourage self reflection for continuous quality improvement[93]
Proficient	• Manages crises [97] • Integrates quality and research in practice[97] • Increase sense of responsibility and confidence[93] • Rapid and accurate appraisal of relevant and irrelevant information[93] • Appreciates deviations from normal rules or patterns[93] • Situates new problem solving in context of prior learning[93] • Deep understanding of rules, theories, alternatives[93] • Decision-making less laboured, more automatic, and starts to develop intuition[93]	• Develop clinical proficiency through professional role practice mentorships[97] • Provide complex and unique learning experiences[93] • Identify teachable moments[93] • Focus on continuous quality improvement through self-reflection[93] • Support learner to build confidence and begin to trust their intuition[93]
Expert	• Fluid skill level with intuition[97] • Thinks intuitively[93] • No longer relies on rules, guidelines or principles[93] • Analytical approaches only used in novel situations[93] • Has responsibility for self, others and environment[93]	• Provide expert mentor / collegial mentorship[97] • Continual domain specific development[93] • Focus on teaching others or discovery of new knowledge[93] • Improvement comes from sharing, seeking a deep understanding and being challenged by others[93]

Appreciating these characteristics is helpful in the current study as it enables us to identify where generalist occupational therapists are at in the novice to expert continuum, and what instructional strategies are appropriate. In 2009, King published a framework of learning-based strategies to foster expertise development in therapists, which provides additional insights into how therapists learn and strategies that support their expertise development. The Framework illustrated in Table 2.2 identifies learning as happening through *experience,*

instruction, or *observation*. King then classifies the learning–based strategies described in the literature as personal-level strategies (personal experiences), person-environment 'fit' strategies (learning supports and resources), and environmental strategies (workplace opportunities). These articulate well with the PEO Model, as illustrated in Figure 2.4.

Table 2.2: King's Framework of Learning-based Strategies for the Development of Therapist expertise[64]

<table>
<tr><td>Routes to expertise</td><td>Experiential learning</td><td>Instructional learning</td><td>Observational learning</td></tr>
<tr><td>Personal experiences
(Personal-level Strategies)</td><td>• Seeking new, challenging experiences
• Engaging in deliberate practice
• Seeking feedback from multiple sources
• Reflecting on experiences and on self</td><td>• Seeking formal instruction</td><td>• Observing how others practice</td></tr>
<tr><td rowspan="2">Supports & Resources
(Person-Environment 'Fit' Strategies)</td><td></td><td>• Providing tool for self-assessment, obtaining feedback on skills and performance, and reflection
• Providing prototypes & exemplars of expert characteristics
• Providing frameworks/models of experts' approaches and strategies</td><td></td></tr>
<tr><td colspan="3">One-on-one coaching and mentoring</td></tr>
<tr><td>Workplace opportunities
(Environmental Strategies)
Caseload experiences</td><td>• Providing complex, challenging caseload experiences
• Working with the same population for extended periods</td><td></td><td>• Team co-delivery of services</td></tr>
<tr><td>Structured Formal Opportunities</td><td>• Providing opportunities for mentorship roles
• Providing opportunities for feedback from multiple sources</td><td></td><td></td></tr>
<tr><td></td><td colspan="2">Opportunities for dialogue and reflection
Group Instruction</td><td></td></tr>
<tr><td>Formal Apprenticeship Models</td><td colspan="3">Cognitive apprenticeship
Critical companionship
Guided participation in communities of practice</td></tr>
</table>

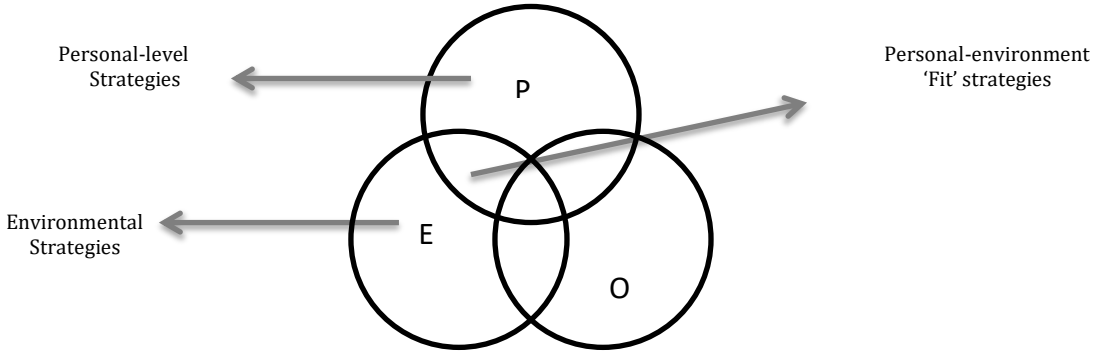


Figure 2.4: The PEO Model with King's learning-based strategies superimposed

Personal-level strategies speak to personal experiences that develop knowledge and skill, and most of the strategies described in the literature engage experiential learning principles[64]. Feedback, deliberate practice, and reflection are the three key components of experiential learning. *Environmental strategies* are workplace opportunities that support learning and typically include caseload experiences, structured formal learning opportunities, and apprenticeship models. The latter richly combines experiential, instructional and observational learning. *Person-environment 'fit' strategies* straddle the person-environment overlap and primarily consist of instructional learning opportunities. The literature describes assessment tools, frameworks and prototypes, and coaching and mentoring as strategies that help therapists optimise the learning they can extract from their experiences. King's strategies speak to the support and development needs of generalist occupational therapists and help classify interventions in such a way that responsibility on numerous stakeholders is implied.

2.7 Support and Development Strategies

Appreciating how competence and expertise develop and the types of strategies for expertise development described in the literature, this section discusses key features of the hand rehabilitation life-long learning environment in South Africa. The section starts with evidence on entry-level hand rehabilitation curricula, as this constitutes the basis on which support and

development strategies are built. What is known about the trajectories towards competence in hand rehabilitation specifically follows. Some key support and development strategies in the literature will then be reviewed, including CPD courses, mentoring, supervision, reflection, and communities of practice.

2.7.1 Entry-level Hand Rehabilitation Curricula

Entry-level hand rehabilitation curricula provide the foundation on which support and development strategies are built after graduation. It is thus necessary to consider what curricula incorporate. Despite hand rehabilitation (as a component of both occupational therapy and physiotherapy training) being considered a specialist area of practice[51,98,99], both local and international scholars have described including at least some hand rehabilitation content in entry-level programs[98–100]. Physiotherapists in the USA recently agreed that hand rehabilitation content should be covered in physiotherapy entry-level programs[101]. However, consensus within the occupational therapy community has not been achieved[100,102]. Furthermore, hand rehabilitation content in entry-level occupational therapy programs appears to vary substantially in South Africa and abroad[98,100].

The lack of consistency and consensus regarding hand rehabilitation curricula in occupational therapy programmes creates complexity when considering support and development strategies after graduation. The time allocated to hand assessment and treatment in undergraduate occupational therapy programmes in South Africa varies between 12 and 96 hours (Median 30 hours), while time spent on splinting ranges between 8 and 42 hours. While all South African universities (n=8) cover the assessment of components of performance (body structure and function) within their curriculum, educators from only two universities mentioned the assessment of occupational performance within their hand rehabilitation curricula[100]. The disparity in curricula time and content creates a variable starting point on which support and development strategies must be built. Thus, evidence suggests that support and development strategies should be flexible to respond to varying undergraduate exposure to hand rehabilitation.

2.7.2 Trajectories Towards Hand Rehabilitation Competence

Numerous postgraduate programmes exist worldwide for hand rehabilitation education and training[103]. These include a number of degrees, diplomas and varying accreditation processes[103]. The postgraduate qualifications largely demonstrate a specialist focus[103], while some accreditation processes suggest a developmental trajectory that caters for generalist or novice therapists in the early phases of the accreditation process[104]. While formal education programmes and continuous professional development courses are common in many accreditation processes, some programmes include alternative development strategies, including a mentoring programme[105]. The diversity of programmes and education opportunities across the world[103] would suggest tailoring according to contextual needs, resources, and priorities.

In South Africa, three Masters programmes and a diploma are offered to hand further rehabilitation expertise and several continuous professional development courses are offered annually in three main cities[106]. These largely demonstrate an orientation to equip therapists working towards specialist hand rehabilitation practice and may be inaccessible to many generalist therapists. It is thus necessary to consider the evidence for alternative support and development strategies that may be suited to the context.

2.7.3 Continuous professional development (CPD) courses

Continuous professional development (CPD) is considered a critical element of the lifelong learning trajectory[81] and is believed to be essential to healthcare professionals' ability to provide quality health care[107]. The concept of CPD is thought to have developed after the Second World War when governing bodies identified the need for structured learning after qualification within fast-advancing work environments[108]. CPD includes formal and informal learning activities that serve to "maintain, update, develop, and enhance…professional skills, knowledge and attitudes"[107:1]. Continuous professional development commences after initial qualification and is an ongoing learning process that should enhance personal and professional growth, enable competence for practice, and broaden knowledge and skill[107]. Although it has been suggested that some professions are moving away from CPD[108], the concept and practice appear to remain current within health sciences literature.

Continuous professional development (which may or may not be mandatory[107]) became mandatory in South Africa in 2007 and is governed by the country's health professions council[109]. Each health professional must accrue 60 CPD points over two years, with one point typically representing one hour of educational activity[109]. Occupational therapists within rural or under-served provinces tend to have restricted access to CPD opportunities[110], a phenomenon not limited to South Africa [15]. For this reason, it has been recommended that rural practitioners provide input in CPD systems and that on-the-ground practitioners be integrally involved in CPD planning and decision making[107]. Furthermore, astute planning of CPD programs starts with assessing health education needs [107], which will constitute a central aspect of the proposed research study.

Appropriate CPD is integral to equipping therapists to respond adequately to the needs of hand-injured patients. Frequent problems with attending CPD activities include geographical distance[111], time, finance and study leave[112]. A further problem identified in a recent South African study on poor nursing CPD attendance highlighted a 'top-down' approach to courses where senior colleagues in the profession determined the focus of CPD activities. Participants expressed a need to be involved in decision-making and for CPD to specifically focus on a needs assessment[113]. The necessity of a similar 'custom-tailored' or needs-based CPD programme has been identified in the Gulf Cooperation Council (GCC) countries[114].

In addition to basing CPD activities on expressed need, these opportunities are recommended to be specifically tailored to rural and underserved contexts[12]. This would necessitate a robust understanding of the demands of practice in South Africa. Although anecdotal evidence abounds, a comprehensive description of this need, particularly regarding hand rehabilitation practice, does not exist. What is known in the South African context is that a need exists for training in language competence and cultural humility[12]. A similar need for cross-cultural training has been identified in GCC countries where services are often delivered by ex-patriates[114]. Interestingly in a study on CPD in musculoskeletal settings, service users similarly flagged a need for clinician training in communication and empathy[112].

In addition to CPD opportunities for this soft skill development, the need for "specific knowledge in assessment and treatment"[67:144] has been reported by novice public service

occupational therapists. Complex injuries to multiple tissue types, delayed or absent hand surgery services and limited resources are a few variables that make hand rehabilitation in rural and underserved contexts challenging[67]. Anecdotal reports suggest that hand rehabilitation courses available in urban centres have very restricted relevance to practice in rural and underserved areas where contextual features drastically alter the presentation and management of the condition. One study reported that 93.4% desired CPD courses to support their hand rehabilitation practice in these challenging contexts[67]. What is not known, however, is the specific course content that will be appropriate for these contexts[67].

Along with the need for evidence to inform the content of appropriate CPD activities, the need to make CPD opportunities accessible has been identified in the literature[12,111,115]. For South African occupational therapy services, decentralising CPD activities from large urban centres and developing distance learning options has been recommended[12]. The use of technology to improve access to CPD in LMICs is considered essential, although the best application of this for specific contexts requires further investigation[115]. Blended learning approaches, Massive Open Online Courses,[115] and communities of practice[116] are some of the modes highlighted in the literature. These methods have various strengths and limitations[115], and using some requires further evidence to be generated[116].

2.7.4 Mentoring

Occupational therapy scholars propose that mentorship is essential to competent practice[117]. A review of studies on mentoring reported overall positive outcomes[118], and mentoring is thought to catalyse the development of expertise[119] and develop more rounded professionals[120].

A large proportion (74.7 %) of occupational therapists treating hand-injured patients in one South African study identified the need for a hand rehabilitation mentor[67]. The difficulty is that these professionals also identify other needs, including a desire for regular supervision and support from an experienced colleague[67]. However, in a resource-restricted South African setting, providing numerous functions is likely unrealistic. Despite the desire for mentors having been identified, it is necessary to understand the specific needs of generalist

occupational therapists to which a mentor would be required to respond. This way, efficient hybrid modes of offering these support and development resources can be considered.

2.7.5 Supervision

While mentoring supports learning at its core, supervision is a role that tends to be considered in the context of workplace management and focuses on ensuring the completion of tasks according to the required standards[121]. Supervisors are individuals in authority in an organisation appointed to act in the employer's interest. In ensuring that work is competently completed, and because professional development of supervisees may form part of the supervisor's role[121], overlap between supervision and mentoring functions can easily occur. A substantial need for supervision of generalist occupational therapists delivering hand rehabilitation in South Africa has been identified, with only 32.6% of novice occupational therapists reporting having sufficient supervision for hand rehabilitation practice[67].

Perspectives in the literature on who holds responsibility for initiating supervision are surprising. The American Occupational Therapy Association (AOTA) attributes full responsibility for seeking the appropriate frequency and quality of supervision on the supervisee[122]. Seeking support from experienced colleagues has been recommended for inexperienced therapists treating hand-injured patients in rural and remote areas[123]. Self-direction in acquiring supervision is necessary, but in the South African context, it may need to be matched by an environmental readiness and capacity to provide this supervision. Many public sector therapists must treat across practice areas[124] and thus may need to draw on colleagues with diverse experience. Also, a very small group of generalist therapists, typically inexperienced and working in challenging practice settings [12,125] are tasked with delivering occupational therapy services to around 80% of South Africans[43]. Ethical reasoning suggests that if a profession and the state are using its least experienced practitioners to serve populations with the most significant health needs[126], these bodies are responsible for meeting the supervision needs of occupational therapists.

Although literature appears to place the onus for seeking supervision on the junior therapist, a relatively small body of evidence[127] speaks to the characteristics that a supervisor should demonstrate the necessary characteristics of the supervision interaction[12,128,129]. Towards this

end, literature has also identified the need for the training of both supervisors and supervisees[127].

Considering the limited size of the occupational therapy workforce in South Africa[130], meeting supervision needs will require considering the utility and success of various approaches to supervision. A recent review of clinical supervision models by Hildebrand and colleagues (2023) identified 11 models with varying formats: individual and group supervision, in-person and telephonic, medical records review and video-case study[131]. Varela and colleagues' (2021) systematic review of remote supervision for rural allied health professionals and psychologists found supervision models that have changed little with technological advances[132]. They highlight the need for "purpose-built" supervision models. It is necessary to understand the needs of supervisees in context in order to select or develop models suited to purpose, positioning this PhD study well for informing supervision models for generalist occupational therapists. Considered a key tool within supervision[131], reflection as a facilitator of lifelong learning and means to expertise development is explored in the next section.

Reflection as a concept is well established within the teacher education literature[133] and described as a means to professional development in health sciences literature[134,135]. Reflection facilitates self-awareness and personal growth through analytical thinking [136]. Practices that can facilitate this include journaling, blogging, discussion[136] and colleague feedback on self assessment[137]. As highlighted in the discussion of expertise, reflection can be a catalyst for expertise development if it drives a constructive dissatisfaction with current performance and motivates continual growth and development[138]

Limited appropriate supervision has necessitated the practice of reflection as a development strategy for many occupational therapists working in the South African public sector[12,124]. Conversely, generalist therapists reporting dissatisfaction with supervision were three times more likely to *not* report being "encouraged to reflect critically on my practice"[139(p.67)]. Reflection could thus be enhanced by satisfactory supervision and prompted by its absence. This highlights the need to understand how therapists currently use reflection and how this practice can be enriched to enhance professional development and service quality.

Although reflection may be defined, it is a "broad and complex notion"[135:196]. Kinsella proposes that through reflection, occupational therapists can investigate their conceptions of knowledge, grow from practice experience, understand the impact of context on practice, interrogate their assumptions, attend to theories of practice and grow in praxis[135]. Growth in praxis suggests that Kinsella is also highlighting the importance of reflexivity. Also a complex notion with varied (and sometimes confusing)[140] conceptualisation, there are differences between reflection and reflexivity: the former involves thinking about something after it occurs (or while it is occurring), while the etymology of the latter means "to bend back upon oneself" and involves " a more immediate, dynamic, and continual self-awareness"[140(p. IX)] which may also involve a broader societal, political, or ideological context.

Praxis is closely linked to reflexivity and how one's actions and practices impact the bigger picture of society. In Freire's work for social justice and liberation, praxis refers to the ongoing cycle between dialogue, reflection and action[141]. Reflexivity (also sometimes referred to as critical self reflection[140]) is thus part of and essential to praxis. Reflexivity is a familiar part of qualitative research[142,143] but is arguably a less familiar characteristic of clinical practice. A conceptual framework used in Australia to understand rural and remote health highlights reflexivity as essential to rural practice[144]. The rural research work of Sherry and Dabula highlights reflexivity (along with transparency, representativity, and reciprocity) as essential to working cross-culturally in rural settings as 'an outsider'. A search of the literature on the importance of reflexivity for rural healthcare practice in South Africa yielded sparse results. South African occupational therapy scholars contend that human occupation is deeply embedded in context and call for the urgency of pursuing contextually responsive scholarship and praxis[145]. While reflection is a familiar means to expertise development, Galvaan, Gretschel and Motimele's editorial[145] urge us to go beyond this and consider reflexivity in our work. This suggests that the expertise for contextually responsive practice of generalist occupational therapists requires praxis, and thus the pursuit of reflexivity as a means and end in *becoming* contextually responsive therapists.

2.7.7 Communities of Practice (CoP)

Reflection is often embedded as a learning tool within other professional development strategies, including communities of practice (CoP)[116,146]. Communities of practice are

defined as "groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly"[2(p.11)]. Considered a "container for social learning"[2(p.11)], CoPs are structured around a domain (a capability important to CoP members), a community (a group of members committed to the group over time), and an area of practice (the particular area of capability with a defined set of challenges). Examples of CoPs include a group of retirees who love needlework and meet regularly to learn how to quilt better. A group of nurses in both clinical and academic settings who meet regularly to build academic-practice partnerships to enhance student learning is another published example of a CoP[147].

Communities of practice in occupational therapy facilitate reflection-on-action, knowledge sharing and knowledge translation and are enriched by having members with diverse perspectives[116]. This medium may hold promise for meeting some of the support and development needs of the population under investigation as the community interactions may facilitate support, supervision (by peers and seniors), mentoring and resource sharing. Although this medium holds potential for the South African setting, CoPs are considered to require further investigation within the occupational therapy profession[116]. In the published commentary in Chapter 3 of this thesis, we propose CoPs as a means to generate a contextually responsive occupational therapy workforce in South Africa[148]. The editors of the Special Edition of the journal in which the commentary was published supported the use of CoPs to enhance the occupational therapy profession's social impact. However, they stated that "that this should involve critical reflexivity so as not to re-inscribe coloniality of knowledge through the categorical use of concepts, theories and frameworks emanating from the Global North"[145(p.2)]. South African occupational therapy has deep historical roots in Western values and knowledge systems[149], and the occupational therapy workforce remains far from representative of the diversity characteristic of South African society[150]. This history and lack of diversity will privilege dominant perspectives that, if unchallenged, will perpetuate coloniality. Galvaan and colleagues[145] caution is thus fitting and echoes the essential place of reflexivity within the lifelong journey (discussed in 2.7.6). Notwithstanding these realities (iterating the arguments shared in the commentary), CoPs need to foster epistemic freedom and engage humbly and critically with *all* perspectives irrespective of their origin, as no knowledge of Global South or Global North origin escapes the risk of coloniality.

Evidence appears to call for support and development strategies responsive to varying levels of entry-level hand rehabilitation exposure. Although trajectories for development after university exist in South Africa, little can be found in the literature that describes a process for generalist therapists. Although some evidence exists on the CPD course needs of generalist occupational therapists, this requires further content and exploration of delivery mode. The specific needs that mentoring should address also require identification. Although the literature places the onus on therapists to seek appropriate supervision, evidence to inform how the state and professional organisations develop a readiness to meet these needs is required. How reflection can be harnessed and how CoPs can be employed requires further investigation for appropriate application to generalist occupational therapists in South Africa.

2.8. Methodological considerations

The studies included in this thesis sought to appreciate the principles of collaborative and community-engaged research (CER)[56] during the concept development phase, as well as in the selection of methods. The orientation of this thesis towards contextual responsiveness further guided methodological choices towards techniques that facilitated collaboration and an appreciation of context. The selection of the case-study approach and the use of a hybrid Delphi technique are examples of these choices (see Figure 1.2).

A multiple-case study approach has been chosen as it is suited to answering 'how' research questions[151] and attends to the contextual conditions of the case. The approach acknowledges that the case and context cannot be easily separated[151], which is particularly relevant to the population being studied as contextual features are known to influence their practice[12,67]. A multiple-case design has been chosen to allow for multiple data sources[78] and comparisons across cases[151], which is appropriate given the diversity across practice contexts.

The final study within this thesis required a method that can synthesize stakeholders' opinion stakeholders opinions in response to evidence and stakeholders' opinions in response to evidence to generate a set of guidelines. A hybrid of the Consensus Development Conference (CDC), Nominal Group Technique (NGT) and the Delphi technique was chosen. The CDC allows for a diverse panel of stakeholders[152], enables the robust consideration of evidence and synthesis of information, and allows the end-users of the product to act as key stakeholders in the consensus development process[153]. CDC, however, lacks a structured

method to guide panel discussion[154]. For this reason, NGT was used to guide discussion following the conference[155]. Complementing the qualitative design, the Delphi technique was used to quantify consensus at the end of the process. Detailed methodology of each of the three studies is covered in the concomitant articles. Ethical permission for the PhD study was obtained from the Human Research Ethics Committee (HREC) of the University of the Witwatersrand (see Appendix C).

2.9. Conclusion

The literature demonstrates that a substantial burden of hand injuries in South Africa creates a demand for generalist occupational therapists to deliver hand rehabilitation to most of the hand-injured population. The occupational therapy profession tasks therapists with meeting this demand in a contextually responsive manner, yet support and development opportunities to enable therapists to do this are sparse.

The literature describes a number of promising support and development strategies, including CPD courses, supervision, mentoring, reflection and communities of practice. However, the literature cannot provide specific directives on how these can be implemented with the population under investigation in a contextually responsive manner. This is largely due to the lack of adequate descriptions of this population's support and development needs. It is in this evidence gap that this research study will be positioned to describe and prescribe how these needs should be addressed.

CHAPTER THREE: Commentary - Contextual Responsiveness

3.1 Publication details

Chapter three is presented as a published commentary. An opportunity was taken to explore the concept of contextually responsive practice for submission to a Special Edition of the South African Journal of Occupational Therapy on *Contextually Responsive Scholarship and Praxis of Human Occupation.* Publishing in the open-access local occupational therapy journal made it possible to contribute to the professional discourse around contextually responsive practice while using the exercise to interrogate the meaning of this concept for hand rehabilitation practice in South Africa.

3.2 Journal details

Title of the publication: Becoming Contextually Responsive: Taking Hold of a Shared Vision for Our Profession

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3.3 Details of author contributions

The contributions made by each author are tabulated below using The Contributor Roles Taxonomy (CRediT)[156]. Details of the taxonomy can be viewed in Appendix D.

Table 3.0.1 Contributions made by each author – Manuscript 1

	Van Stormbroek	Van der Merwe
Conceptualisation		
Resources		
Manuscript writing draft		
Manuscript writing review and editing		
Supervision		

3.4 Copyright and Permission

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3.5 Published article: Becoming Contextually Responsive: Taking Hold of a Shared Vision for Our Profession

COMMENTARY

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Becoming Contextually Responsive: Taking Hold of a Shared Vision for Our Profession

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ABSTRACT

Equitable access to life-giving occupational participation lies at the centre of occupational therapy's mission and is pivotal to development in South Africa. Contextually responsive education, research, policy and practice are a means of achieving this. This, however, necessitates knowing how to be or become contextually responsive as individuals and as a profession. It also necessitates partnership between our 'feet on the ground' practitioners and 'head in the cloud' academics – a productive collision of reality and possibility. This commentary explores what it means to be contextually responsive, whether it's possible for practitioners and scholars to pursue this together, and poses recommendations for finding each other in the journey of becoming.

INTRODUCTION

We read with excitement the call for contributions to this Special Edition and the opportunity it presents: advancing our understanding of human occupation and the potential for societal impact. Our profession is being called to contextual responsiveness. And how could we not respond in a year in which floods, fires, violent protests, and a global pandemic have further exposed our country's systemic weaknesses? But are you, like us, looking for a 'plain-language summary' for "contextually responsive"? Do you instinctively agree to the idea of "responsiveness", eager and appropriately resolute, while at the same time hearing your more pragmatic mind asking, "But what does it actually mean?" And possibly your conscience checking if you are really willing to engage with what it may mean, particularly in COVID-19-times which continue to challenge our adaptability and capacity for change. Might it ask us to humbly enter into the lived realities and stories of individuals, communities and cultures very different from our own? Might it ask us to honestly reflect on how we have been socially advantaged while others have been made to accept disadvantage? Or, with courage, to face our disadvantage, exclusion and pain, while humbly and firmly rejecting the very real pressure to believe that we are less than or, the other. Might it ask us to relate to others on the level ground of our shared humanity, dignity and worth rather than operating out of the comfort, security and confidence derived from our social identities? Might it require us to welcome and embrace diversity, and be enriched by it, rather than act out a feeling threatened by difference? If you can relate to some of these "wonderings", then perhaps you also want to move beyond the rhetoric and unpack what it means to be 'contextually responsive', and decide: is it imperative? Are we willing? Am I wiling?

The call suggests that our profession may not be contextually responsive, that it may have a way to go or, at the very least, is in need of critically reflecting on its responsiveness. It suggests that we may be falling short of our potential as a profession in contributing to the development of our country. Perhaps, knowing this instinctively, we are quick to agree with the need to become responsive to our context. However, if we don't understand what we're falling short of, and what our potential is, then our talk of contextual responsiveness remains the exchange of professional pleasantries. If we are to leverage a synergistic strength, as a profession of around 6000 occupational therapists, technicians and assistants, is it not essential for us all to harness our collective strengths as practitioners and academics?

In addition, it seems prudent to ask: is it possible for our practitioners and scholars to pursue contextual responsiveness together, given our different outlook posts: one for practice, and another for theory? Can we orientate towards being 'on the same page', speaking a shared professional language about the meaning of contextual responsiveness, and journeying toward a shared vision of contextually responsive practice? This commentary is a simple and honest contribution towards a productive fusion between what is, and what can be, and articulates an intention to not leave any of our colleagues behind in the process. It explores the questions posed above and proposes mechanisms for growth and development as a South African occupational therapy academy .

A point of departure: how are we currently positioned as a profession?

Occupational participation is deeply embedded in context and thus all attempts to enable participation as a means to health and well-being, need to be responsive to context[1]. An occupational therapy profession that does not consider context when developing programmes and services, is one that will simply copy-and-paste itself from one setting to another. Although this may expedite the establishment of a service and the initial expansion of the profession, this duplication approach ignores one of the triple-strands of the profession's DNA: the context and environment. To practise in a

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contextually responsive manner means that context and environment are part and parcel of the design of therapeutic interventions, uniting reality with possibility through practical wisdom, reflection, and action. This is praxis[2]. It is also ethical practice. Therefore, copy-and-paste practice without integrating people's context and environment may not only be counter-intuitive to contextually responsive practise, and praxis, it may also be in essence countering our duty of upholding the ethical values of beneficence and non-maleficence, respecting people's dignity, and ensuring distributive justice[3]. For these reasons, to enact praxis and ethical practise, we also need to share the will to critically engage with the often historical complexities associated with context and environment of the people that we serve, along with the historical origin of occupational therapy theory.

It has been suggested that the South African occupational therapy profession was constructed on a number of theoretical duplications, or "a hodgepodge of various models" predominantly developed for contexts vastly different to our own[4:21]. At best, this has limited our contextual responsiveness. Hammel[5] argues that the implications are far more treacherous; that transferring culturally-specific professional assumptions and beliefs, entrenches ideologies that are disabling and threatens practice that is truly client-centred[5]. An example of this may be the uncritical imposition of the tenets of western individualism juxtaposed to the deeply collective nature of being human on the African continent[6].

What is evident in South Africa, is that the growth of our profession has been stunted and our impact constrained. Though equipped with an understanding of the potency of occupational participation to health and well-being, we continue to operate almost solely within the health sector (with a small number of therapists working in the Departments of Basic Education and Social Development). Understanding a little of the complexity of the health system into which occupational therapy services are embedded, provides helpful context for understanding our historical contribution as a profession. South Africa's healthcare system was, and remains, characterised by extreme inequality. Factors that contributed to this inequality include apartheid policy, prior colonial rule, race and gender discrimination, high levels of violence over many centuries, migrant labour, income inequality and the destruction of family life[7]. Fragmentation and service in-co-ordination and duplication were common prior to 1994: fourteen separate health departments existed, and provincial responsibility was taken for the running of hospitals. In addition, 400 local authorities had health departments that were responsible for prevention and promotion services[7,8]. A curative, hospital-based approach was favoured with 76 % of funding being allocated to hospital–based services prior to the country's first democratic election[7]. In 1994, the African National Congress's National Health Plan sought to use a Primary Health Care (PHC) approach to restructure and transform the health system. A National Health Authority was instituted to co-ordinate overall services with provincial health authorities operating in nine provinces. Priority was given to PHC facilities and strategies to improve services in rural and underserved areas were adopted[9]. Despite the latter and subsequent policies' attempt to shift the inequality, transformation has been hampered by a number of factors, including the continued skewing of resources towards the private sector and flaws within health system management[10].

Against this backdrop, the majority of our occupational therapy services remain dedicated to a small minority of the population that have access to private sector care. Up-to-date statistics are limited but recent data suggests that around 80% of occupational therapists work in the private sector[11,12] a sector which serves around 20% of the population[13]. We send our (arguably) most vulnerable colleagues (Community Service occupational therapists) to populations with the greatest health needs (rural and underserved populations). We have been slow to reinforce their efforts with mentoring and practice-support despite the urgent need for them to pioneer services that are strategic, contextually responsive, and more far-reaching. The demographic of our workforce (63% white and 95% female[11]) continues to poorly reflect the South African population, perpetuating barriers in care and limiting the diversity of knowledge and perspectives that hold potential for shaping more responsive theory and practice. We continue to reactively "tread water" against our quadruple burden of disease through curative and rehabilitation approaches, while our potential for being part of our country's transformation to a more equitable society remain unrealised.

In addition to some of the practice realities described above, which are common in many health care professions originating from applied science, a classic gap continues to exist between occupational therapy and occupational science theory, and the practice of the profession in South Africa. Occupational science may be perceived as highly theoretical with little translation into practice. Perhaps this gap is further sustained by the sheer respective workloads in various sectors, and lack of access for clinicians to literature and theoretical resources taken for granted by academics. We would argue that this dichotomy contributes to professional distance between practitioners and academics. We are cognisant that this generalisation is mostly supported by anecdotal evidence and the authors' own experiences within clinical, academic and clinical educator roles. However, we believe this perceived gap is important to address when taking stock of our current positioning as a profession and envisioning future directions against the backdrop of rapidly changed and changing contexts.

If highlighting features of our current positioning as a profession feels like a description of a glass-half-empty, we would ask you to see this commentary as reflections on our potential, rather than a judgement of the legitimate value of our current contribution. We would ask you to look with us for the opportunity: the opportunity to respond to contextual realities and take our place as a profession within our country's development.

Context: what are we responding to?

Before we can talk about being "responsive", we need to conceptualise what we are responding to: what do we mean by "context"? The physical context is relatively easy to see: rocky terrain that makes mobilising in a wheelchair difficult, or a three-by-three-meter home that renders a specialist paediatric wheelchair for a cerebral palsied family member an unrealistic necessity. Aspects of the virtual context may also be distinguishable: during the COVID-19 national lockdown, for example, the impact of the demands of the virtual aspect of context on coping and well-being, acting as both a barrier and facilitator of social participation, could be more readily perceived by occupational therapists. However, not all aspects of the context, and mechanisms of its impact on occupation and participation, are self-evident. Like UV light reveals invisible realities, we need specific illumination or lenses to distinguish other aspects of the environment.

Occupation-focused theoretical frameworks greatly assist with this, making more overt aspects and impacts of the context and environment. The physical, social, cultural, institutional, temporal and economic elements of the context or environment[14–17] are

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typically highlighted by occupational therapy theory. More recent occupational therapy conceptual frameworks have highlighted the importance of geopolitical elements of the environment[18]. Intentionally superimposing these models onto our analysis of clients' occupational participation can be invaluable in understanding the enabling and disabling forces of the context and environment and developing interventions built on this understanding. With the medical model having exerted a strong historical influence in the shaping of our profession in South Africa[4], we are adept at identifying the internal capacities of individuals contributing to participation limitations but often require more critical theoretical lenses to distinguish powerful influences external to the person.

We cannot, however, apply these theoretical lenses indiscriminately but need to critique their suitability for our context. For example, we would question why none of our conceptual frameworks include the spiritual environment? Although the person is acknowledged as a spiritual being by some conceptual frameworks[17], the spiritual context and environment, central to many worldviews, needs to be conceptualised. Beyond an evaluation of the conceptual frameworks themselves, Hammel[5] contends that an essential aspect of our critique should also involve evaluating the "ideological and structural contexts"[5:23] of our professional concepts and research. Essentially this speaks to interrogating the philosophical and epistemological assumptions on which our theories are built to evaluate their appropriateness, or responsiveness, for South African practice contexts.

Additionally, if we are to substantially extend our contribution as a profession through population-based interventions, our understanding of contextual shapers of participation needs to be developed. Although not an occupational therapy-specific framework, the Social Determinants of Health (SDOH) provides a very helpful lens to analyse the "non-medical factors", or "the conditions in which people are born, grow (develop), work, live, and age, and the wider set of forces and systems shaping the conditions of daily life"[19] that impact on the health outcomes of populations. Some examples of the SDOH include education, food security, employment, community safety, gender, social status and transportation, to name but a few. The diversity of factors demonstrates why our healthcare policy calls for intersectoral action and collaboration in improving health outcomes. For some of the factors, some of our profession's contribution is relatively obvious. However, we may need help understanding the "wider set of forces and systems shaping the conditions of life"[19] and how occupational therapists can position themselves to address this.

Applying occupational justice theory, the Participatory Occupational Justice Framework (POJF)[20] can guide us in uncovering these "forces and systems". In considering the local practice and systems context, as well as the political, socio-cultural and economic contexts that exert influence at a global, regional and national level, this Framework provides guidance in both identifying and addressing occupational injustice. Importantly, this framework helps us become aware of the influence that power relations exercise on occupation[20]. Having pioneered practice in South Africa built on this awareness, Galvaan and Peters[21] have developed the Occupation-based Community Development (ObCD) Framework. This framework uses a participatory approach, along with occupational science, to address community development, social inclusion, human rights and occupational justice. Engaging with this model and examples of how our colleagues have applied and developed occupational science theory in their practice can greatly expand our vision of occupational therapy's contribution in South Africa.

These concepts and theoretical frameworks in occupational therapy guide us in being able to identify, recognise and integrate the many elements of complexity and systems, toward honouring the foundation of the profession: the intrinsic relationship between context, occupation, health and well-being[22]. Why is it then that we need to pose these reflexive questions: Why are we not responsive in our work? Are we, as an occupational therapy profession, responding to the multi-layered context in which our profession is suspended? Are we responding to the contexts in which our clients, both individual and collective, participate? Or do our inevitable subjective worldviews and subjective realities press us to extract and understand only samples of our clients and their occupations, largely dissected from their environment? Perhaps, unwittingly, we have succumbed to the eroding global discourse of neoliberalism, during which basic human rights such as health, education, dignified ageing, and well-being are distortedly converted to market-related values of possible usefulness and personal 'capital', pushing the poor and vulnerable further into the long shadows of marginalisation[23]. Neoliberalism is also often undergirded by 'possessive individualism' where the individual is the owner of his/her space and ways of thinking, being and doing, assuming a freedom that is exempt from interdependence with others and the environment; a freedom that at once, too serves as a form of possession[24]. Perhaps the enclaves of neoliberalism and possessive individualism hinder our ability to maintain a 360-degree gaze on the grid of holism - the very foundation of our theories, and an essential gaze to be contextually responsive.

Local evidence would suggest that we are only beginning to appreciate the way in which occupations of South African populations are deeply embedded in, or bounded by, the social and historical context[25]. Socioeconomic and political factors of the past continue to exert a moulding force on the current occupational choices of clients and communities[25]. Hence, in the present we have witnessed in full force the accentuation of inequalities along the usual fault lines of race, gender, and socio-economic standing. For example, while some South Africans can expect to engage in satisfying, stimulating, safe and well-remunerated employment, others are expected to be grateful for any form of employment and accept working conditions that undermine human dignity. And we will continue to skirt around these inequalities as a profession if we fail to use the potency of our profession to affirm the dignity and worth of all citizens through access to health-giving occupations. We need to ask ourselves what insights have we garnered, and what foresight we need, to strike the balance anew: between remaining relevant as a health care profession, while addressing the SDOH as a critical area for occupational therapy intervention[26].

Responsiveness: what does this mean?

Critically engaging with theoretical concepts and frameworks holds great potential for expanding our vision for our current practice and for new avenues of contribution. But to carefully pursue translating this engagement into prudent action, we must also consider the quality or posture of responsiveness. Responsiveness, within human biology, refers to an organism's ability to sense a stimulus or detect changes within its environment (internal or external), and to respond appropriately[27]. If we draw on this definition, how do we ensure that we develop this "ability to sense...and respond" judiciously to the contexts and environments in which our clients (individual and collective) and our profession are suspended? We would like to explore some interrelated elements that we believe are critical to nurturing a responsive disposition.

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Firstly cultivating a growing awareness of the influence that power relations have on occupation[20] is essential to responsiveness. An ability to perceive this and exercise habitual sensitivity to the dynamics of power and dominance evident in, and entrenched by occupations, has recently been conceptualised by Ramugondo as occupational consciousness[28]. All environments support or hinder occupational participation[29] and may create or perpetuate occupational injustice[20]. A consciousness of the complex, dynamic and multi-layered context of occupation helps the occupational therapist to understand 'the ecological nature of disability'[29:176] and arguably the ecological nature of ability. Perhaps the capacity to readily perceive the latter will catalyse an appreciation of the former? Nevertheless, the aptitude for distinguishing power relations will equip us to position ourselves, alongside our clients to pursue participation equity, meaning occupational justice, through the 'critique and change'[29:176] of disabling environments.

Additionally, engaging in critical reflection of our ourselves as individuals, our own practice and the positioning of our profession can greatly assist us in growing an awareness of power relations on occupation[30].This should flow from, and assist our engagement with new theoretical perspectives. This reflection is facilitated by asking ourselves, and our colleagues, critical questions, examples of which we have posed in this commentary

Exposure to and immersion in the contexts and environments in which our clients, individual and collective, are embedded as occupational beings, is also essential to developing responsiveness. This necessitates opportunities for experiential learning, ideally through direct engagement in diverse South African contexts. An autobiographical study conducted by a South African therapist demonstrated that engagement in clients' contexts does not automatically produce responsiveness. She described a learning process of "seeing and feeling the invisible"[26:4]. Essential to developing this sense or awareness was the therapist engaging in critical reflection while being immersed in contexts characterised by social inequality and poverty. Prolonged exposure to clients in context along with retrospective reflection enabled the therapist to "zoom out" from her clinical view of the clients' health needs, to see their social needs, for example, that one of her clients did not (only) need a splint (sling) but had a deep need "to live a dignified life"[26:4]. Her realisation challenges us: Are we satisfied with preventing a painful shoulder subluxation while urgent calls are being made to address social injustice? Are we too easily satisfied with an over-reductionist focus when we are being called to serve those who wait patiently for justice? Exposure to, immersion in, reflection on, and dialogue around contexts of injustice is key to feeding a healthy sense of critical dissatisfaction with the scope of our current contributions and understanding of contextual shapers.

In addition to these elements, Richards and Galvaan[26] propose that participatory approaches are essentially a means to developing contextually responsive in practice. The same researchers described the importance of therapists realising their "common humanity and shared citizenship with clients"[26:4]. This realisation facilitates a participatory approach in which client and therapist are "equals working for change"[26:4] and are able to collaboratively act in response to a "shared understanding of the client's situation"[26:4].

The phrase, "equals working for change"[26:4] lingers as we move on to consider whether it is feasible to navigate a shared journey as a profession towards contextual responsiveness. Could this be a key to a common ground of departure for us as scholars and clinicians? Embracing the premise that when working with our clients (individual or collective), or working with one another, we are "equals working for change"[26:4]? In addition, might a collective "deep appreciation of humans, viewing all human beings to be of equal worth, simply because they are human and are deserving of the opportunities (or capability sets) to ensure social inclusion"[21:284] create a thread of unity through our diverse work? We suggest that this belief that guided Galvaan and Peter's work on the ObCD Framework, be embraced as a compass that directs and corrects our collective efforts.

Setting out together: boots in the mud and head in the clouds?

Having explored a little of what it means to be contextually responsive, we would now like to consider the feasibility of pursuing this quality collectively - as clinicians and scholars. The experiences that come from the environments in which we work shape our thinking, as do the theoretical backgrounds that have informed our professional reasoning. They shape what we see as important in the occupational therapist's contribution and guide how we approach intervention, whether-working on the ground or at a desk with theory. Is it possible to navigate a shared journey as a profession when our perspectives are potentially very different?

To think through being contextually responsive as a profession, we would ask for a little creative licence to liken the South African occupational therapy academy to a human being – a person. This person is dressed for bad weather with a pair of sturdy, work-worn boots and is set to clear a course through a treacherous marshland. The person's legs are wading, calf-deep through mud, straining against the viscosity of the sludge, pelting rain and fierce wind. The legs' endurance-trained muscles strain and twitch with effort, preventing the person from sinking, but achieving slow progress across the seemingly endless swamp. Dark clouds swirl and promise more bad weather but these legs are resolute in out-muscling the mud. The weight of our profession's practice reality is borne by our legs - our clinicians - amidst staff shortages, maladministration, lean budgets, waiting lists and the life realities of clients and communities.

Now shift your gaze upwards, from this person's boots to their head: the person's torso is long – propelling their head high above the clouds. The sun is shining here, radiating hope for the mission. From this view, the threatening hazards of the terrain are met with promising possibilities. One possibility is to replace the mission of clearing a course through the swamp with a vision of restoring the wetland ecosystem to protect local human and animal life from frequent flooding in the area. The opportunity to reintroduce rare fish species that will support the economic activities of nearby villagers holds promise. This lofty perspective proliferates possibility. Unencumbered by sticky reality, the head, our scholars, have freedom to cast a vision and formulate a mission for the body. This freedom is considered essential to a democratic and tolerant society and enacting this liberty models for students the independent reasoning and critical thinking that is important for nurturing active and responsible citizenship[31]. This position and perspective 'above the clouds', is not, however, without its own resistance from the 'elements'. Training occupational therapists while holding the tension between our professional 'reality' and 'possibility' is challenging. The rapidly changing higher education landscape leaves little space for apathy or distraction, to 'just enjoy the sun'. Keeping a steady focus on the production of contextually responsive practitioners while competently responding to the press for technological advancement, research productivity and generation of departmental income requires agile and innovative adaptation.

This analogy, though somewhat embellished and admittedly

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limiting in many ways, conveys the potential challenge of navigating a shared journey as practitioners and scholars when our lived experience of the profession may be very different. It is easy to see how instructions from the 'head' to the 'feet' could be received with incredulity, and how feedback from the feet could be met with disdain. Is it possible to flourish as a profession with our 'head in the clouds' and 'feet on the ground' when it's sometimes difficult to feel like we are part of the same body? Are the realities of current practice to be navigated by clinicians alone, or the privilege and responsibility of critical thinking and the education of our practitioners to be embraced only by our scholars? Perhaps these juxtapositions affirm more than anything, the importance of bridging disconnect rather than comparing.

A study in which Australian occupational therapy hospital-based clinicians participated in monthly discussion groups around occupational science topics, elicited a similar perceived disjunction between the experience of scholars and clinicians. They dubbed the distance, or "dissonance" between the 'head in the cloud' and 'boots in the mud' as, "utopian visions" and "dystopian realities"[32]. Some participants' viewed the human rights and occupational justice principles with which they were engaging as being "too far removed from the realities of occupational therapy practice"[32:9]. However, their prolonged engagement with occupational science principles in a collegial space, promoted ways of thinking about practice that participants had previously "rendered to an academic domain"[32:10]. Rather than seeing a divide between "the ideals of university therapists versus the practices of hospital therapists"[32:10] a participant reported beginning to see opportunities for occupational justice in practice.

This account suggests that the distance between the "head" and "boots" (feet) does not necessarily need to be a barrier. Might the head and feet being able to access different aspects of people's contexts create opportunity for a fuller perspective? Might our different skills in "sensing" and "responding" be just what is required for our professional body to exercise a synergistic strength in response to our country's call for transformation? We propose that an effort to leave no one behind will strengthen the contribution that we are able to make and we propose some "do-able" directions for action to support a "whole-body" response.

Recommendations: Becoming a contextually responsive academy

Numerous priority actions have been identified that are essential to the transformation of the South African occupational therapy academy. Diversifying the academy is critical[33] and university curricula need to facilitate this and be shaped by diversity. Pursuing epistemic freedom by humbly interrogating the ways that we 'think, speak and do', and collectively imagining new narratives, is vital to this[34]. Collective pursuit of the newly articulated Occupational Therapy research priorities for South Africa is another critical action. These priorities, and means to pursuing them, warrant robust discussion beyond the scope of this contribution. Here we would like to highlight just three recommendations that speak specifically to how we, as scholars and clinicians, might navigate the journey of becoming contextually responsive together.

Context lenses: developing our ability to intervene at an environmental level

Echoing Mary Law's perennial recommendation, we need to focus on the environment[29]. Theory has equipped us to look at the environment, but we struggle to see the complex environmental influences that shape occupation and perpetuate occupational injustice. Our profession's scales have long tipped in favour of intervention that targets the person[29], often removed from his/her context, resulting in low or unsustainable impacts. Intentionally equipping ourselves for environmental intervention is not proposed as an alternative to this, but rather a means to bringing balance and increasing our impact[29]. Our students should be taught how to analyse clients' occupational participation (individual and collective) in their context using frameworks that create sharp lenses for identifying the transaction between human occupation and the environment. Our undergraduate research students could generate valuable knowledge around the occupations of South African populations by analysing this participation through a lens of the social determinants of health. Additionally, undertaking such analysis in collaboration with clients or research participants will support the development of participatory behaviours and approaches. Continuous professional development opportunities can facilitate similar activities for practicing clinicians where contemporary occupation-focused conceptual frameworks are used as tools to evaluate practice and collaboratively generate visions for wider impact. We need to find ways of funding posts that target environmental change and proliferate the evidence for the invaluable role of occupational therapy across sectors for achieving national development goals[35,36]

Communities of Praxis

Communities of practice (CoP) have become useful vehicles for growth and development through regular engagement with others. Regular constructive engagement between our professions 'head' and 'feet' is essential if we are to build trusting partnerships that can weather the transformation journey that is inevitably both uncomfortable and exciting. A community of praxis, or CoP that focuses on the development of praxis, is proposed as a vehicle to facilitate the productive collision of reality and possibility. This would involve a small group of clinicians and scholars meeting on a monthly basis to collaboratively reflect on their practice, engage with contemporary theory, and pilot actions that are responsive to both. This cycle of theory, action and reflection holds promise for developing critical reflexivity. Through facilitation, potential exists within such groups to develop a participatory posture or where clients are partners in identifying intervention priorities and actions. Some evidence exists to suggest that communities of practice with an occupational justice and human rights focus can increase therapist's awareness of human and occupational rights and equip them for action[12]. This vehicle could also be used to engage with emerging practice areas and include clients and stakeholders from diverse sectors. Inclusion of Community Service occupational therapists in these groups also holds potential for meeting some of the crucial support needs of these therapists while at the same time reinforcing strategic positioning of the services that they are developing. The imminent implementation of revised CPD guidelines with a focus on demonstrating learning invites us to explore new mechanisms for our profession's growth and transformation. Accrediting learning through a CoP also incentivises participation.

Rising to a 'just-right' challenge: acting as part of the whole

Uniting in pursuit of contextual responsiveness will synergise our impact and challenging one another will sharpen our individual contributions to the whole. But as we engage one another, we propose that we need to be cognisant of facilitating a "just-right" challenge that calls for both action and caution by our 'head' and

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'feet'. An environmental challenge or press that is overwhelming will lead one to surviving the growth opportunity, rather than experiencing it[29]. Excessive force, inappropriate methods, apathy or indifference will stunt the transformation process. We need to challenge one another with the view to strengthening the whole. This will require that we:

- Assume a critical posture and humble disposition: to be contextually responsive means to be critical – critical of dominant discourses or socially prevalent ideas; critical of taken-for-granted norms and assumptions. For the profession to benefit optimally from this individual and collective posture of inquiry, confrontation that is regardful is required. While exercising wisdom that does not entertain apathy or allow injustice to be perpetuated, acting in the power of humility is essential as we confront each other's assumptions and beliefs. We should assume that change is possible for the individual and collective and give each other opportunity and help to change. We should engage with one another based on our shared humanity and intrinsic dignity with an openness to learn and be challenged.
- Seek to understand each other's lived experience and inter-subjectivities: It is easy to judge a pair of boots that you have never walked in. Living in each other's reality enables us to feel the fatigue of walking through resistant mud or experiencing freedom from muddy constraints that allows for renewed perspective and possibility. CPD accredited therapist exchange programmes may offer a simple way of facilitating learning and conceptualising practice beyond our own comfort zone (eg. emerging practice settings, rural community-based rehabilitation, community service placements). Experiencing each other's practice while engaging reflectively with theory will not only facilitate personal growth but will build the trust and non-judgementalism that is required to enable collective growth.
- Pursue epistemic freedom by recognising everyone as a legitimate carrier of knowledge[37]: Our knowledge creation should be accessible to all and we should avoid alienating parts of our professional body with inaccessible terminology or unexplained concepts. All contributions should be authentically acknowledged. We should interrogate our local ideological divides and guard against intellectual superiority or intellectual ethnocentrism.
- Befriend discomfort: transformation is a disruptive process, and we should be prepared for the discomfort it will bring. This will require us to open ourselves to desensitization and lower our defences that make it difficult to see things from a different angle. We should acknowledge that transformation is a process, that we will not always have the answers and that there will be periods of 'getting stuck'.
- Be careful of serving efficiency over justice: Buttressed by neoliberalism's hyper-norm of subsuming economic market values (i.e. valuing that which can be counted and gained for person benefit) into all spheres of life[23], our working environments typically reward, or fiercely demand, productivity. We thus have to be mindful of creating time and space for critical reflection in our practice. Instead of doing more, we should attend to what really matters and position our labour for addressing injustice or responding to professional priorities strategically rather than feverishly.

CONCLUSION

Is contextual responsiveness a process, a product, a posture, or a description of transformation? We would propose that it is all of these. If these reflections have left you with more questions than answers, we ask that you keep asking them with us as we interrogate what this means for our practice, policy, education and life-long learning, and our research. Contextual responsiveness is an imperative pursuit – a journey that we must take – a journey we must take together. What is there to be gained, you may ask? Impact. Justice. Change. Being part of the living, breathing and beating heart of a profession.

AUTHOR CONTRIBUTIONS

Kirsty van Stormbroek the arguments posed in this commentary in commentary and wrote the first draft. Tania Rauch van der Merwe reviewed, commented on and refined the manuscript. Both authors reviewed and edited the manuscript (and approved the final version of the manuscript). Both authors agree to be held accountable for all aspects of the work.

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CHAPTER FOUR: Policy-based Principles for Hand Rehabilitation (Study 1)

4.1 Manuscript details

Chapter Four is presented as a manuscript prepared for submission to *Disability and Rehabilitation*, according to the Journal's submission guidelines. The Journal aims to enhance understanding of disability and support rehabilitation practice, policy and science. The Journal identifies policy as one of the key topics targeted within the publication, and the Journal provides the option for authors to publish open access. The manuscript reports the results of Study 1, which aimed to develop policy-based principles for hand rehabilitation delivered by occupational therapists in South Africa.

4.2 Details of author contributions

Title of the publication: Developing policy-informed principles for Rehabilitation Using a Model of Care Framework: A Hand Therapy Example in a Global South context

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Target Journal: *Disability and Rehabilitation*

DHET accredited

Impact Factor: 2.439

4.3 Details of author contributions

The contributions made by each author are tabulated below using The Contributor Roles Taxonomy (CRediT)[156]

Table 4.1: Contributions made by each author – Manuscript 2

	Van Stormbroek	O'Brien	Van der Merwe	Myezwa
Conceptualisation				
Method				
Resources				
Manuscript writing draft				
Manuscript writing review and editing				
Supervision				

4.4 Manuscript: Developing policy-informed principles for rehabilitation using a model of care framework: a hand therapy example in a Global South context

4.4.1 Abstract

A call for contextually responsive rehabilitation practice necessitates services being shaped by policy. This imperative extends to the field of hand therapy, which is required to respond to a substantial and increasing burden of hand injuries in South Africa. This study sought to develop policy-based principles for hand therapy services delivered by occupational therapists in South Africa to inform a strategic response to this need.

A qualitative document synthesis was undertaken. Relevant local and international policies (n=29) were identified by a review of the literature, stakeholder consultation and expert review. Ritchie and Spencer's (1994) framework analysis was employed. Familiarization was achieved by reading a hard copy of each policy. A thematic framework was identified by reviewing the literature relating to models of care and considering Walt and Gilson's (1994) policy analysis triangle. Indexing and charting of each policy was completed using NVivo 12 framework matrices. Completed matrices were downloaded to Microsoft Excel where mapping and interpretation were used to reduce the data to a set of principles.

Eighteen generic rehabilitation principles were generated and are discussed under three categories, namely *the goal of rehabilitation* (1. Full participation & inclusion) *the nature of rehabilitation* (2. Quality patient-centred care; 3. Equity & equality; 4. Accessible services; 5. Truly comprehensive care; 6. An occupational focus; and 7. Work interventions); and *enablers of rehabilitation* (8. Intersectoral action for vital communities; 9. Empowered clients and communities; 10. A vital workforce; 11. Resources [including assistive devices and technology]; 12. Infrastructure and equipment; 13. Seamless services; 14. Leadership and governance; 15. Financing; 16. Data for service improvement; 17. Networks & partnerships; 18. Responsive and anticipatory).

The generic nature of the 18 principles generated from analysis allows the versatile application of these policy principles to numerous fields of rehabilitation practice. Specific application of the principles is discussed for hand therapy services in South Africa.

4.4.2 Introduction

The need for rehabilitation is substantial and increasing, prompting the recent call by the World Health Organisation to strengthen rehabilitation in health systems globally[57,157]. Health conditions amenable to rehabilitation are responsible for 60% of years lived with disability in South Africa[158].

Access to rehabilitation is a human right, critical to affirming the dignity of and securing respect for people with disabilities and their families[159,160]. However, rehabilitation is not accessible to all South Africans. People with disabilities experience significant barriers to accessing rehabilitation, including cost and transport challenges environmental[49] and attitudinal barriers[161]. These challenges are compounded by numerous health system flaws that reflect poor planning and resourcing for rehabilitation[49].

Challenges concerned with access persist more than two decades after the adoption of South Africa's *Rehabilitation for All: National Rehabilitation Policy*[162]. Reasons for stunted reforms in rehabilitation service provision are multifactorial[49,163]. One key contributor to the gap between policy and practice has been the relative absence of rehabilitation in South Africa's primary healthcare standard treatment guidelines that direct primary care[164]. The omission of rehabilitation in guidelines is significant as a key strategy for improving access to rehabilitation services is to make this service part of primary health care[165].

The concerted effort exerted by stakeholders in South Africa has led to rehabilitation being considered for inclusion in primary healthcare guidelines[164]. To further the vision of rehabilitation being available for all South Africans, advocacy for advancing rehabilitation services must be supported by evidence of need[158]. To guide a workforce design for physical rehabilitation services specifically, eleven conditions that contribute most significantly to years lived with disability, and for which evidence-based interventions are available, have been identified[158]. Eight of the eleven conditions are known to contribute to a substantial burden of hand injuries and the need for hand rehabilitation: 1. HIV/AIDS[166,167]; and 2. Type 2 diabetes[168,169] contributes to a burden of peripheral neuropathies and infections affecting the hand; 3. Musculoskeletal conditions; and 4. Fractures and dislocations[170], frequently affect the upper limb and hand; 5. Neonatal, and 6. Congenital disorders contribute to the burden

of cerebral palsy[171], obstetric brachial plexus palsy[172], and congenital hand conditions[173]; 7. Stroke[174] leads to significant upper limb impairment, and 8. Burns[24] are frequently sustained to the hand. If we are to heed advice to prepare our rehabilitation workforce to respond to need[158], then preparation for hand rehabilitation is unarguably essential.

Hand therapy is an area of rehabilitation practice that aims to optimise the function and participation of clients with or at risk of hand injuries and conditions. It is easy to appreciate a hand injury's impact on earning a livelihood, supporting a family, and participating in essential daily activities[8]. Various individuals, initiatives and influences have historically shaped the development of hand therapy practice in South Africa and the response to the burden of hand injuries. In the late 1970s and early 1980s, occupational therapy and physiotherapy clinicians with a particular interest in hands met for case discussions to improve their knowledge and skill in Gauteng, KwaZulu Natal and Cape Town. These groups were formalized in 1988 by establishing the South African Society of Hand Therapists (SASHT) for registered occupational and physiotherapists. In 2000, a postgraduate diploma in Hand Therapy was established at the University of Pretoria, providing much-needed training for occupational therapists working in hand therapy[175].

In the early stages of hand therapy development in South Africa, therapists worked in government hospitals[175]. Thirty-five years after the establishment of SASHT, this pattern has shifted drastically, with the majority of members working in private practices[176]. These private practices serve a small percentage (around 20%) of the South African population with access to private health care[69]. Although internationally[177] hand therapy is a field shared by occupational and physiotherapists, SASHT membership and the practice of hand therapy in South Africa is dominated by occupational therapists[176]. Occupational therapists provide hand therapy to patients in the public sector (around 80% of the population), and [69] represent a very small percentage of the occupational therapy workforce.

The substantial demand for hand therapy and the restricted workforce responding to this need highlight the importance of strategically thinking about how hand therapy services are planned and developed. One means of pursuing a strategic response is to allow policy to inform and direct this development. A strategic response is also needed as South Africa moves towards a national health insurance system[69].

Hand therapy services in South Africa need to be shaped by policy if we direct services towards the rehabilitation need intentionally, but also to avoid perpetuating the characteristic gap between rehabilitation policy and practice[163]. Although this study sought to extrapolate policy-based principles for hand therapy specifically, the imperative to respond to policy is relevant to all fields of occupational therapy and rehabilitation practice. The purpose of the article is therefore three-fold:

- To provide a robust description of the methods used to create an analysis framework based on the literature on rehabilitation models of care
- To report on the policy-based principles for rehabilitation developed through the application of this framework to relevant policies
- To discuss the application of these policy-based principles to the field of hand therapy in South Africa.

Models of care describe the ways health care services are conceptualised and operationalized[178]. Models of care vary[178] but typically describe who receives care, why care is required, which providers offer services, where these services are provided, what specific services are offered and when this should occur[179]. Models of care, therefore, provide a useful lens through which policies can be analysed to extrapolate principles to guide the development trajectory of hand therapy services in South Africa. Models of care are informed by policy but may also identify gaps in policy[180], guiding further advocacy efforts for responsive policy development.

4.4.3 Methods

A qualitative document synthesis was undertaken. To guide document selection, a broad definition of policy was used within this study to refer to "a set of ideas or a plan of what to do in particular situations that have been agreed to officially by a group of people, a business organization, a government, or a political party"[181(p.1)]. The inclusion criteria for the study were local and international policies, guidelines, or position statements related to disability and rehabilitation in general and hand injuries/conditions in particular; services delivered by occupational therapists; the education / ongoing education of occupational therapists and hand therapists; and South African Healthcare Policy that informs hand rehabilitation services.

An initial list of inclusion policies (n=26) was developed based on a review of the literature and input from stakeholders during the proposal development stage of the research project. The list of policies was disseminated to five local hand therapy and policy experts in 2020 for omissions of key documents to be identified. Given resource limitations, the study did not aim to include all relevant policies but to construct a set of principles based on policies of key relevance. Details of this process, including amendments made based on feedback, are summarised and available in Appendix E. Twenty-nine (n=29) policies listed in Table 4.2 were included in the analysis.

Table 4.2: List of local and international policies included in the analysis

Policy	Author/s
Local Policy (date)	
1.National Health Insurance Bill (2019)[69]	Parliament of the Republic of South Africa
2.National Development Plan 2030 – Chapter 10 Health (2012)[182]	National Planning Commission
3.White Paper on the Rights of People with Disability (2016)[183]	Department of Social Development
4.Integrated National Disability Strategy (1997)[184]	Office of the Deputy President, RSA
5.Rehabilitation for all: National Rehabilitation Policy (2000)[162]	National Department of Health
6.Framework and Strategy for Disability and Rehabilitation Services in South Africa 2015-2020 (2015)[55]	
7.Standardisation of provision of assistive devices in South Africa (2003)[185]	
8.Ideal Clinic Manual Version 18 (2018)[186]	
9.Language Policy (2015)[187]	
10.*Policy Framework & Strategy for Ward-based PHC outreach Teams* (2016)[188]	
11.The Compensation Commissioner's Guidelines for Health Practitioners and Employers to manage Work-related Upper Limb Disorders (2004)[189]	The Compensation Commissioner
12. Minimum Standards for the Education of Occupational Therapists (2020)[13]	Health Professions Council of South Africa
International Policy (date)	
13.*Convention on the rights of Persons with Disabilities (2006)*[190]	The United Nations
14. WHO Global Disability Action plan 2014-2021: Better Health for All People with Disability (2015)[191]	The World Health Organisation
15. WHO guidelines on Health-related rehabilitation: concept paper (2013)[192]	
16. Rehabilitation 2030 A call for action: meeting report (2017)[157]	
17. Rehabilitation in Health Systems: A guide to action (2019)[57]	
18. Minimum Standards for the Education of Occupational Therapists (2016)[14]	World Federation of Occupational Therapists
Position Statements:	
19. Occupational Therapy & Rehabilitation (2019)[193]	
20. Sustainability Matters: Guiding Principles for Sustainability in Occupational Therapy Practice, Education and Scholarship (2018)[194]	
21. Specialisation and Advanced Occupational Therapy Competencies (2014)[195]	
22. Entry-level competencies for Occupational Therapists (2008)[196]	
23. Diversity and Culture (2010)[197]	
24. Competency and maintaining competency (2012)[85]	
25. Occupational Science (2012)[198]	

26. Client-centredness in Occupational Therapy (2010)[199]	
27. Occupational Therapy and Community Centred Practice (2019)[200]	
28. Occupational Therapy and Assistive Technology (2019)[201]	
29.*Quality Evaluation Strategy Tool (QUEST)* (2020)[202]	

4.4.4 Analysis

Qualitative content analysis was used to analyze the policy, procedure, and position statement documents. Framework analysis was employed as it provides a systematic method for sifting, sorting and charting data according to key themes and issues[203]. The method involves five interconnected phases.

Phase 1, the *familiarization phase,* involved the first author reading through hard copies of each policy and making notes. Phase 2 required *identifying a thematic framework* through which the policies could be analysed. The study's objectives and literature review guided the development of a thematic framework.

Walt and Gilson's[204] Model for health policy analysis was chosen as an initial lens through which to view each policy. The model emphasizes the importance of attending to the context of a policy, the actors, the process and the content rather than focusing on the latter alone[204]. Although this study's definition of policy was broad and formal policy analysis methods were not utilised, the four considerations proposed by Walt and Gilson[204] were included to ensure that the broader context in which each policy document existed was considered. The model became the first theme or lens through which each policy (n=29) was analysed. The four constructs of the model each served as a deductive code in the analysis framework (see Table 4.3).

The research objectives guided further construction of the thematic framework: to define a model of care for hand therapy services, to identify role players, and, if possible, to delineate the role of the 'generalist' and 'specialist' occupational therapist within hand therapy practice. The researcher's initial analysis framework drew mainly on the work of Chetty, a South African researcher, who developed a rehabilitation model of care for people living with HIV in a semi-rural South African setting[180]. A review of recent literature, conducted in February 2020, was used to review and refine Chetty's framework. Fourteen relevant articles [179,180,205–and 215] were found and reviewed to establish deductive codes. Codes included in the

framework were organised into an additional six themes. Each theme acted as a lens through which the twenty-nine policies were analysed (See Table 4.3). All the policies were uploaded to NVivo 12. Framework matrices were created with each of the seven themes, with each policy (n=29) populating a row and each code populating a column. During the analysis process, some deductive codes were refined, and additional inductive codes were generated. These edits and additions are indicated by text in italics in Table 4.3.

Table 4.3: Framework of deductive and inductive *(italics)* codes

	Code	Definition
Lens 1. Walt and Gilson's Policy Analysis Model [204]		
1.1	Actors [204]	Individuals or members of groups that were integral to *the* development of policy. May include interest groups, professional associations or government organisations.
1.2	Process [204]	Processes that have been integral to the development of the policy.
1.3	Context[204]	Key contextual factors are important to consider when analysing the policy.
1.4	Content[204]	The content of the policy as it relates to the study objectives.
Lens 2. Objectives: the underlying objectives of a model of care[207]. An objective is "something toward which effort is directed: an aim, goal, or end of action"[216]		
2.1	Access[207]	Improving access to health services[207]
2.2	Reducing inequality[207]	Reducing inequality in health status[207]
2.3	Quality care[207]	Providing safe, high-quality hand injury care[207]
2.4	Patient-centred continuum[207]	Promoting a patient-centred continuum of care[207]
2.5	Value-for-money[207] / *cost-effective*	Ensuring value for money [207]
2.6	Optimise public & private[207]	Optimising services in both the public and private sectors[207]
2.7	Improving service balance[207]	Improving the balance of preventative, primary and acute care[207] services
2.8	Financially sustainable[207]	Pursuing a financially sustainable integrated system [207]
2.9	Support vital workforce[207]	Supporting a highly skilled and dedicated workforce[207]
2.10	Improving patient outcomes [212]	Measuring and improving outcomes that "matter" to clients with/at risk injuries/conditions[212]
Lens 3. Principles[207] refers to the principles that underpin a model of care. A principle refers to a "belief that is accepted as a reason for acting or thinking in a particular way"[217].		
3.1	Being patient*/client/ community* centred[207]	A "focus by the health system on the needs, preferences and outcomes relevant to the patient and their families, organisational and individual commitment to ensuring patients are informed, motivated and prepared across the stages of their condition, injury or event"[207]
3.2	Promoting health service equity [207]	Services that are responsive to the needs of people from all cultural and linguistic backgrounds, across the lifespan, socioeconomic and educational backgrounds, living in all types of settings (urban/peri-urban/rural)[207]
3.3	Collaboration with stakeholders [207]	Multi-sectorial and multidisciplinary 4communication, consulting and collaboration that emphasizes clinical management and partnerships[207]
3.4	Forward-looking[207] / *anticipatory*	A service orientation towards best practice evidence and a dynamic characteristic that enable models of care to be revised to incorporate new technologies or approaches[207].
3.5	Policy responsive[207]	Models of care are guided by national priorities, strategies, and frameworks. [207]
3.6	Policy informing [207]	Models of care provide opportunities for stakeholders to influence future policy development. [207]

3.7	Evidence-based practice [180]	Practice that integrates the best evidence, clinical expertise and patient choice [7]
3.8	Maximising function, participation[180] *and inclusion in society*	Services that are orientated towards improving the clients' function[180] and participation
3.9	Shared decision making[212]	Health professionals create awareness of choice, presenting intervention options in a manner accessible to the client, and the client and professional making a joint decision that has been guided by the patient's preferences[218]
3.10	Prevention & promotion[207]	An emphasis on promoting health and addressing upstream factors to prevent injuries/conditions[100,180,207]
3.11	Early detection & intervention[207]	Early detection and treatment of injuries/conditions
3.12	Social determinants of health: intersectoral action[184] & *community-based rehabilitation*	A concerted focus on addressing the social determinants of injuries and conditions through intersectoral action[184]
3.13	Seamless care[180]	"Continuity of healthcare received by a patient across the spectrum of caregivers and their environments"[219]
3.14	Self-management [207], *self- representation & empowerment*	"Intrinsically controlled ability of an active, responsible, informed and autonomous individual to live with the medical, role and emotional consequences of his/her injury/condition in partnership with his social network and the healthcare providers" [220:10]
3.15	*Relevant & responsive to context*	Able to perceive and appropriately respond to contextual features
3.16	*Occupational perspective / occupational focus*	Views individuals and collectives as occupational beings
3.17	*Sustainability*	Able to be maintained without resource depletion or permanent damage[221]
Lens 4. **Roles of care providers**[179] refers to the respective roles of health care providers involved in facilitating hand health across the continuity of care.		
4.1	Occupational Therapist	Describes the role of the occupational therapist
4.2	OT generalist	Describes the role of the generalist occupational therapist, specifically
4.3	OT specialist	Describes the role of the 'specialist' hand therapy occupational therapist
4.4	Physiotherapist	Describes the role of the physiotherapist
4.5	Nurse	Describes the role of the nurse
4.6	Doctor	Describes the role of the doctor
4.7	Surgeon	Describes the role of the surgeon
4.8	Social worker	Describes the role of the social worker
4.9	Psychologist	Describes the role of the psychologist
4.10	CHW/CRW	Describes the role of the community health worker/community rehabilitation worker
4.11	Home-based carer	Describes the role of the home-based carer
4.12	Family	Describes the role of the family
4.13	Community care providers	Describes the role of the carers within the community
4.14	Traditional healer	Describes the role of traditional healers
Lens 5. **Phases of care**[179] refer to the "when" of care		
5.1	Pre-acute[179]	Care focused on client health maintenance and prevention (primary or secondary) of illness/unnecessary progression/deterioration[222]
5.2	Acute[179]	Care is focused on treating sudden and acute injuries/conditions that require emergency, medical, or surgical management and cannot be taken care of in a less intense care setting.[223]
5.3	Post-acute[179]	Treatment that clients require after experiencing an acute injury or condition[224]
Lens 6. Settings refer to a place /location where healthcare services may be accessed.		
6.1	Community	Healthcare occurring in a community setting
6.2	Primary	Healthcare occurring in a primary healthcare setting
6.3	District Hospital	Healthcare occurring in a district hospital setting

6.4	Regional	Healthcare occurring in a regional hospital setting
6.5	Provincial/Central	Healthcare occurring in a provincial/central hospital setting
6.6	Specialised	Healthcare occurring in a specialised hospital setting
6.7	Rural/underserved outreach	Outreach healthcare services delivered to rural/underserved areas
6.8	Telehealth	Healthcare is delivered remotely using telecommunication.
7. **Critical enablers** refer to factors essential to the delivery of quality care		
7.1	Culturally safe care[209,214 215]	Culturally safe health care is built on practitioner reflexivity, dialogue, decolonisation, regardful care and minimising power differentials.
7.2	Healthy *and diverse* workforce	An adequate, skilled and sustainable workforce with special consideration given to rural and underserved areas[207]
7.3	Education & training	The appropriate and continuous education of health professionals at all levels of care
7.4	Data for performance improvement	The effective collection and management of relevant data to enable the improvement of hand-injury care services[225]
7.5	Team-based approach	An approach to hand injury care that is "multiple disciplinary" (multidisciplinary, interdisciplinary or transdisciplinary, depending on context)[226]
7.6	Care management & and referral processes	Comprehensive team-based services and effective referral between services that assist clients with complex or chronic hand conditions to manage their health[227]
7.7	Care coordination & integration	"An integrated system of care that guides and tracks patients over time through a comprehensive array of health services spanning all levels of intensity of care" [228:30]
7.8	Continuum of care	Multidisciplinary care across phases of care (including rehabilitation, community, and lifelong)[208]
7.9	Technology	Technology required for the delivery of quality hand-injury care services
7.10	Appropriate infrastructure	Infrastructure required for the delivery of quality hand-injury care services
7.11	Appropriate resources	Resources required for the delivery of quality hand-injury care services
7.12	Quality & Research	The use of research to improve the safety and quality of health care[229]
7.13	Digital & electronic solutions[212]	The appropriate use of digital and electronic health solutions
7.14	Vocational rehabilitation *& habilitation*	Vocational rehabilitation is an essential component of the rehabilitation of adults with hand injuries/conditions[208]
7.15	Responsive to patient experience[212]	Services that are responsive to the experiences of clients with hand conditions and collectively move towards improving the acceptability of services[212]
7.16	Co-design[212] *& universal design*	"Equal partnership of individuals who work within the system (healthcare staff), individuals who have lived experience of using the system (patients and their families/carers) and the 'designers' of the new system"[230:2]
7.17	Patient satisfaction[214]	Mechanisms to assess and respond to patient satisfaction
7.18	Responsive to health professional experience[212]	Highlights the need to understand provider experiences and factors that affect their capacity to effect change.[212]
7.19	Appreciation of system transference[209]	An awareness of the need to build trust with clients given the socio-political and historical backdrop.[209]
7.20	Community participation[184]	The need for community participation in the health sector which necessitates capacitation for this, formal and informal methods of participation and strengthened community-based services [184]
7.21	*Leadership & Governance*	Ensures implementation of strategic policies, attends to system design, effective oversight, regulation, accountability and coalition building [231]
7.22	*Financing*	Raising adequate funds that prevent catastrophic expenditure for service users and incentivize efficient use by service users and providers [231]
7.23	*Networks & partnerships*	Collaboration toward a common goal between two or more parties
7.24	*Rehabilitation & disability awareness*	Knowledge and understanding of rehabilitation and disability issues

The third phase of analysis involved indexing, a task that can also be termed coding. Each policy was searched for each deductive code in the framework, and the relevant text was tagged or *indexed*. The indexing thus linked the code to all text that spoke to this code in the policy. When a new code was generated (inductive code), it was added to the NVivo framework matrix and the necessary indexing was completed.

The fourth phase of analysis involved *charting*[203], or *summarising and charting*[232]. *Summarising* was completed concurrently with the indexing: a summary of each indexed section was entered into the framework matrix at the intersection of the relevant row (policy) and column (code). The NVivo 12 framework matrix enables this summary to be linked to the policy's original text, allowing the researcher's logic to be traced. An *Excel* spreadsheet with each matrix and summary is available as a supplementary file. The *Excel* format does not enable the reader to view the policy text to which the summary is linked but this data is available as an NVivo 12 file on reasonable request.

Charting has been described as re-arranging the data and framework matrix to create order[233] or 'building up a picture of the data as a whole'[203(p.182)]. This step was used to systematically synthesise and reduce the data to develop a set of principles for hand therapy. During the lengthy process of indexing, summarising and updating the framework with additional inductive codes, the researcher could discern patterns across the data. Certain codes clustered together and captured similar meanings. The data was downloaded to Microsoft *Excel,* where these patterns were traced by colour-coding each of the framework's codes and codes containing similar content. In this way, data was reduced into eighteen categories named according to their content. The codes included in each category and the sources of indexed text are listed in Supplementary File III. This file allows the reader to appreciate which policies inform each principle.

Each of the eighteen categories contained dense summaries of policy excerpts that needed further synthesising to articulate a principle. Table 4.4 uses *Principle 13: Seamless system: integrated, coordinated, team-based care* as an example to demonstrate how this synthesis was achieved. Indexed summary text populated each of the cells indicated by a capital letter. The researcher began with the summary in A and began drafting a principle in the far right column that captured this content. Summary B was then read, and the principle draft was

edited to include any new concepts contained in summary B. The exact process was systematically followed from C to L. By the end of the process, the principle was robust but cumbersome. Principle 9 was, therefore, edited to remove any repetition and refine the sentence construction. The same procedure was followed for each of the categories that were synthesised into principles.

Table 4.4: Policies indexed and codes included in Category 13 (as an example of the process) reduced to Principle 13 *Seamless System*

Category 13: Seamless system: integrated, coordinated, team-based care							
	Codes within Category 9						
Policies indexed	2.4 Patient-centred continuum	3.13 Seamless care	7.5 Team-based approach	7.6 Care management and referral processes	7.7 Care coordination	7.8 Continuum of care	**Principle:** Principle constructed through systematic reduction of content: -Text A summarised into a draft principle -Text B added to principle -Text C added to principle – Text D… to Text L systematically added and principle revised and refined.
Convention on the rights of persons with disabilities			A				
Minimum Standards for the education of occupational therapists 2016			B				
Rehabilitation 2030 A call for action – meeting report 2017	C		D	E	F	G	
Rehabilitation in Health Systems – a guide to action 2019			H	I	J		
Global Disability Action Plan 2014-2021						K	
WHO Guidelines for Health-related Rehabilitation – Concept paper			L				
Framework and strategy for disability and rehabilitation services in South Africa 2015-2020				M	N	O	
Ideal Clinic Manual, 2018				P			
Rehabilitation for All: National Rehabilitation Policy			Q		R		
National Development Plan 2030 – Chapter 10 Health, 2012	S						

The fifth and final stage of analysis included *mapping and interpretation*[203]. This phase involves illustrating the results and demonstrating how these relate to one another[233]. Guided

by the aim[203] and objectives of the study, the researcher iteratively arranged the principles in various ways to pictorially communicate meaning. The final iteration is presented diagrammatically and discussed in the next section.

Ethics

The study did not involve human participants and did not require ethical permission. However, due to it being embedded in a larger study, ethical permission was obtained from [HREC details]

Trustworthiness

The researcher's subjectivity needs to be acknowledged in the analysis process. Depending on the research paradigm, this subjectivity is not necessarily a limitation but must be delineated[143]. The first author interrogated her positionality through reflexive writing to trace her subjectivity's potential influence. A positionality statement and possible influences of this position on the research process are made in Appendix E.

Structural coherence was pursued to strengthen the credibility of the results[234]. A structured data analysis plan was developed after reading all documents, and each step of the analysis process was documented. Dependability and confirmability[234] of the findings were strengthened by repeatedly exposing the analysis logic followed by the researcher to the other study authors. The raw data, data reduction products, analysis, and interpretation are available upon request.

4.4.5 Results and Discussion

In this section, the results and discussion are presented together. An overview of the policies included in the analysis is presented, followed by the principles developed from the content analysis. The application of these to the field of hand therapy is briefly discussed, and the strengths and limitations of the study are outlined. A table that indicates the policies from which each principle was derived is included in Appendix G.

Overview of policies

Approaching each policy through Walt and Gilson's policy analysis lens[204] enabled a focus on more than the content of the policies: in this way, the context, actors and process could be appreciated. An extensive discussion of these aspects is beyond the purpose of this article,

but key features of the policies are mapped in Figure 4.1. Local policies are mapped above (green background) and international policies below (blue background), with the horizontal line separating these and indicating a timeline. Disability policies are highlighted in red text, and rehabilitation policies are highlighted in dark yellow. The green text identifies occupational therapy policy documents. Only one policy was included in the analysis that was related specifically to injuries and conditions of the upper limb (see grey text). Black bold text indicates policies related specifically to healthcare in South Africa.

The timeline and an appreciation of policy content developed during analysis allow us to recognise that South Africa has been progressive in its disability and rehabilitation policy formulation, with key policies being formulated in 1997, 2000, and 2003, many years ahead of global policies drafted by the United Nations and World Health Organisation (key policies in 2006, 2015, 2019). Despite this achievement, knowledge of current service realities in South Africa confirms that policy implementation has been problematic. *Rehabilitation in Health Systems: A Guide to Action* (2019) may offer guidance in addressing problems within the institutional context that have frustrated the progress of the rehabilitation vision for all[163].

It is not surprising that there is only one policy explicitly related to upper limb conditions, as rehabilitation policies tend to be generic and have a strategic focus. At the same time, provincial and district-level procedures are more likely to address operational concerns and may speak more specifically to the management of hand injuries/conditions. In order to further inform a model of care for hand therapy specifically, further research is needed that interrogates local operational policies and procedures.

Global guidelines are being developed for the rehabilitative management of specific conditions. In 2023, the World Health Organisation released a package of interventions for rehabilitation for twenty prevalent health conditions accompanied by high levels of disability[235]. At least eight of these conditions are often associated with hand function impairments and thus imply a demand for hand therapy. Disability and impairment caused by other hand injuries and conditions are arguably more prevalent than anticipated. Significant gaps exist in hand injury data in LMICs where the burden is considered to be substantial and increasing[21,24], enough for hand injuries to be considered a public health priority[20,21,26]. This

underscores the need for data that communicates both the prevalence of hand injuries and the associated impact on function and participation[236].

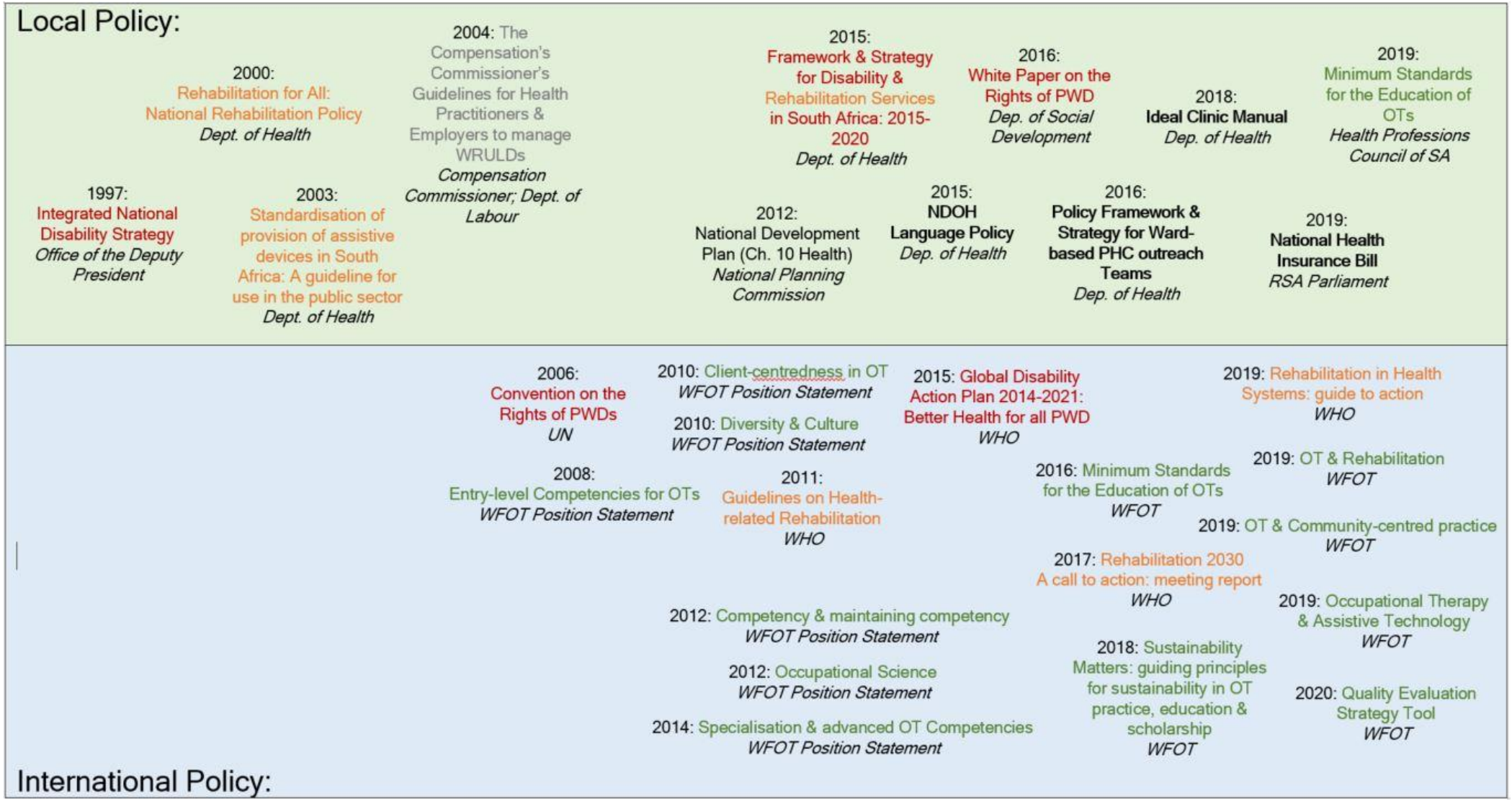

Figure 4.1: Policies included in analysis mapped according to key features

Rehabilitation principles

Eighteen principles for rehabilitation were generated from analysis and were categorised as the *goal of rehabilitation (principle 1)*, the *nature of rehabilitation (principles 2-7),* and the *enablers of rehabilitation (principles 8-18)*, as illustrated in Figure 4.2. Each principle warrants robust discussion, but within the scope of this article, aspects of application to hand therapy practice will be outlined.

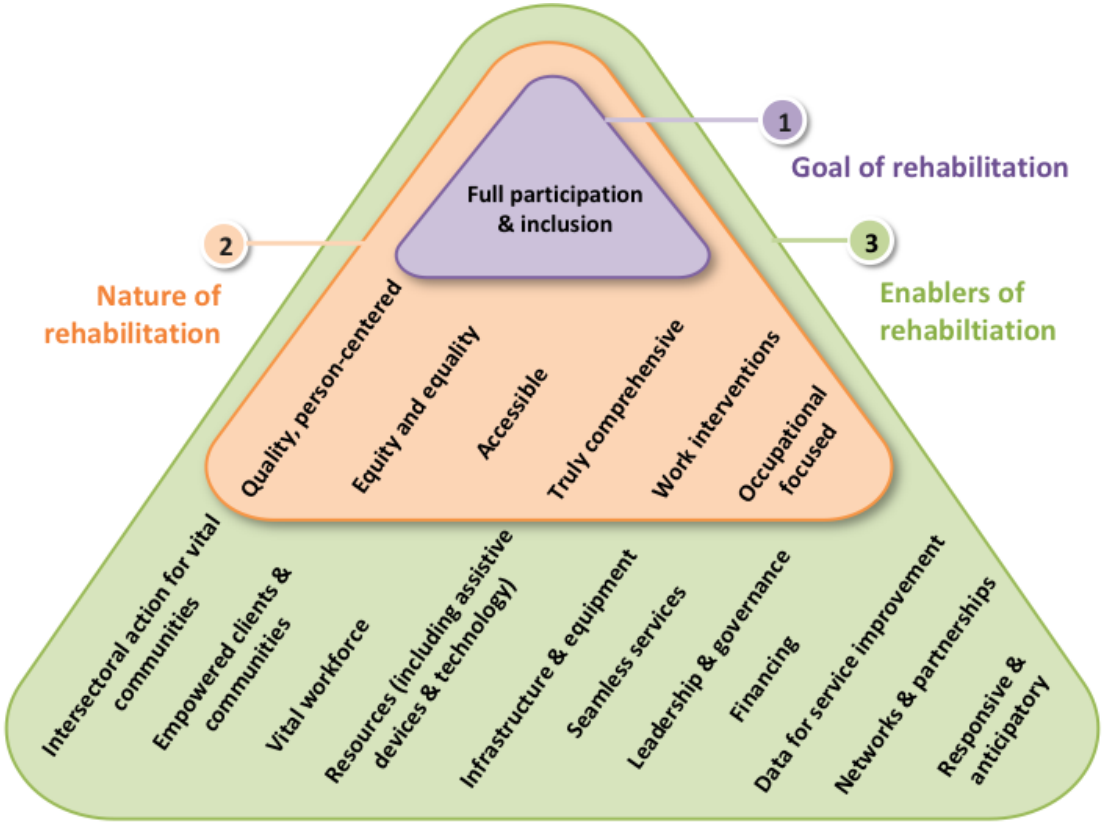

Figure 4.2: Eighteen principles for rehabilitation synthesized from policy; conceptualised as the goal, the nature and enablers of rehabilitation

The goal of rehabilitation

The first principle, *full participation and inclusion,* is articulated in Figure 4.3 and was derived from just over half (n=15) of the policies. The principle speaks to rehabilitation as a human right and means the expression of intrinsic human dignity. This finding echoes the work of local scholars who highlight the importance of developing a human rights culture within the occupational therapy academy in South Africa[160] and call therapists to leverage local and international policies to realise the right to rehabilitation[159]. The principle offers an orientating or re-orientating directive to rehabilitation workers to enable function and independence. However,

beyond this, it considers both the inclusion and contribution of individuals and communities as a means to realise and express their full human potential.

PRINCIPLE 1: FULL PARTICIPATION & INCLUSION

Facilitate and support the optimal independence and full, effective and equal participation and inclusion in society of all individuals, groups and communities, without segregation or isolation; participation and inclusion that enables the expressions of human dignity, potential (creative, artistic, intellectual), personality, citizenry and worth through engagement in health-supporting occupations that people need to, want to, or have to do, for the benefit of themselves and society as a whole.

Figure 4.3: Principle 1 articulates the *goal of rehabilitation*

Whether *full participation and inclusion* fall within the scope of hand therapy can be questioned. Traditionally, hand therapy has focused on the biomechanical aspects of assessment and treatment, addressing impairments to body structure and function. A critique of this approach as reductionist has led to a shift towards a more holistic, patient-centred approach to care, enabled and evidenced by an increased use of patient-rated outcome (PROs) measures[237].

One may ask if the uptake of PROs equates to a focus on participation and inclusion. In 2019, a systematic review mapped PROs commonly used in hand therapy to determine if their content covered all aspects identified by the International Classification of Functioning, Disability and Health (ICF)[237]. The ICF addresses functioning and disability (by measuring body functions, body structures, and activity and participation) and contextual factors (by measuring personal and environmental factors). The results of the systematic review found a strong focus on body functions, activity and participation. While some personal factors were measured, none of the reviewed PROs included environmental factors[237]. This suggests that recommended PROs support a focus on *participation*. However, these are unlikely to facilitate adequate attendance to *inclusion* if environmental factors are not considered.

The implications of hand therapy not attending to the inclusion in society of the population it serves require critical reflection by the hand therapy community. Implications may vary across practice contexts.

The nature of rehabilitation

Principles 2-7, listed in Figure 4.4, describe rehabilitation's required nature or qualities. *Quality client-centred care* (principle 2) builds on the goal of rehabilitation articulated in principle 1 but

highlights quality and client-centredness as constructs that require intentional implementation, evaluation and improvement. Within hand therapy, using the recommended standard set of outcome measures for hand and wrist conditions[236] supports client-centred care, though clinicians need to be cognizant that these measures do not account for environmental factors affecting function and participation[237]. Principles 6 (*Work interventions*) and 7 (*Occupational focus*) reiterate the imperative of positioning therapy to enable function and participation. These policy directives are affirmed by contemporary hand therapy literature around the importance of work interventions in hand therapy[238] and interventions that are occupation-based[239].

Principles 3 (*Equity and equality*) and 4 (*Accessibility*) speak to how equitable distribution and accessibility of services affirm the equal worth of all citizens. Intensive efforts toward universal health coverage affirm that this is a global challenge. The title of a local study describing the barriers to healthcare access in rural areas, "You must carry your wheelchair", captures some of the complexity of inaccessible services in South Africa[161]. The inequitable distribution of healthcare services across public and private sectors[43], and within hand-injury care services[46] highlight the need for service development to be guided by these policy guidelines. A gap in hand therapy literature that focuses on measuring the quality, equitable distribution and accessibility of hand therapy services suggests areas for growth within hand therapy practice and research.

Principle 5 (*Truly comprehensive care*) speaks to the need to develop services beyond curative and rehabilitative services. As a strongly clinical area of practice, this offers a challenge to hand therapy practice. The prevention of hand injuries and other conditions constitutes an obvious target area where services are desperately needed. This includes the prevention of secondary complications, but, as highlighted by a growing body of hand injury literature[18,23,28,29,36,37,39–41], primary prevention must be included.

PRINCIPLE 2: QUALITY PEOPLE-CENTRED CARE

Deliver quality rehabilitation services in the public & private sector, through the adoption of norms and standards that uphold the inherent dignity and autonomy of clients and communities, and are fundamentally people-centred (i.e., client/community-centred). Service quality is to be monitored, evaluated and improved. Key quality dimensions to be measured include appropriateness, sustainability, accessibility, efficiency, effectiveness, person-centredness & safety. Quality services focus on function (rather than disease), attend to culture & diversity, are delivered by the appropriately trained rehabilitation providers, supported by collaboration between levels of care, are safe, of sufficient specialization and intensity to meet needs, are underpinned by appropriate assessment, treatment planning, outcome measurement (including patient-reported outcome measures) and note-taking practices, and integrate diverse evidence.

PRINCIPLE 3: EQUITY AND EQUALITY

Uphold respect for the inherent dignity & equal worth of all people, acceptance of diversity, and ensuring the full and equal enjoyment of all human rights & fundamental freedoms; pursuing a long and healthy life for all, within a supportive & cohesive community, with provision of equitably distributed, integrated, comprehensive (including rehabilitation), community-based primary health care services, across public and private, and levels of care.

PRINCIPLE 4: ACCESSIBLE SERVICES

Respond to the substantial unmet, and increasing need for, rehabilitation to enable all individuals and communities to access quality comprehensive services that are available, accessible, acceptable, affordable and adequate, as close to the people as possible, throughout the life-course.

PRINCIPLE 5: TRULY COMPREHENSIVE CARE (SERVICE BALANCE)

Develop and deliver services for people with, or at risk of disability, at the earliest possible stage, with early identification, accurate diagnosis, multidisciplinary team assessment and referral for rehabilitation. Services must include the full range of prevention, promotion, cure, rehabilitation and palliation services. Services should extend beyond clinical and curative services to include community and population-based approaches. Rehabilitation's role in non-communicable disease prevention is critical and occupational therapy's knowledge of occupation as a determinant of health is critical to this and demands a cross-sector approach that includes people with disabilities.

PRINCIPLE 6: WORK INTERVENTIONS

Develop and deliver work interventions. People with temporary, permanent or episodic disability have the right to engage in work that is freely chosen or accepted, on an equal basis to others in an open, inclusive and accessible labour market. Work interventions are critical for the successful engagement in decent work, to reduce economic vulnerability and release human capital. Led by the Department of Labour, funding must be in place for vocational rehabilitation and should include (not limited to) work visits, use of assistive devices, work simulation, training, guidance and counseling, and use of special centres. Research is needed, including around work-related upper limb disorders, given the high manual labourer population.

PRINCIPLE 7: AN OCCUPATIONAL FOCUS (for occupational therapy)

Leverage knowledge of the relationship between health and wellbeing and participation in occupation. Occupation is the therapeutic means and ultimate goal of occupational therapy intervention - enabling participation in occupation is thus the main concern of occupational therapy. OTs understanding of the transaction between the person, the environment and occupations underpins this focus and enables them to intervene with an individual or collectives at the level of (or combination of) the person (e.g. rehabilitating impaired body structures and functions or creating opportunities for a group of unemployed clients to develop self-employment skills), the occupation (e.g. adapting activities and occupations or exposing at-risk to health promoting occupations) or the environment (e.g. adapting the environment to facilitate participation or identifying occupational risk factors and advocating with communities for resources to facilitate occupational justice).

Figure 4.4: Principles 2-7 articulate the *nature of rehabilitation*

The enablers of rehabilitation

Delivering quality, client-centred, participation-enabling, equitable, accessible and comprehensive care cannot be realised without key enablers being present. Critical enablers (principles 8-18) identified from policies are contained in Figure 4.5.

Principles 8 (*Empowered clients and communities*) and 9 (*Intersectoral action for vital communities*) are arguably foundational to supporting optimal rehabilitation interventions: they speak to healthy, vibrant, cohesive, agentic clients and communities. Shared decision-making and other collaborative approaches to clinical processes offer a way of empowering clients in clinical settings. The limited literature on shared decision-making within hand therapy and hand surgery may suggest that this area requires attention. These principles, however, also imply work with or within the community, an approach likely unfamiliar to hand therapists. Community-based rehabilitation (CBR) is an inclusive community development strategy that offers hand therapists an approach that addresses impairment, function and participation of all people equally. The approach mobilizes local resources and capacity and is helpful in filling service gaps[240]. The hand therapy community is beginning to consider its role in health promotion and prevention, and

educational opportunities have been recommended to support therapists in fulfilling this role[241]. Engaging with hand therapy's role in community-based rehabilitation is yet to be articulated and is arguably essential for patients' restoration of hand function to translate into equal inclusion and participation in their communities.

Principles 10-16 (*A Vital Workforce; A Seamless System; Resources; Infrastructure & Equipment; Leadership and Governance; Financing; Data for Service Improvement)* reflect the essential building blocks of health systems identified by the World Health Organisation[242]. Strengthening health systems for rehabilitation has become a global priority and a strategic objective towards which much effort has been exerted in South Africa[164]. To deliver a model of hand therapy care that responds to policy and evidence, strengthening health systems for hand therapy is required. Isolated efforts by hand therapists are unlikely to effect sustainable change, necessitating *networks and partnerships* (Principle 17).

Networks and Partnerships was developed as an inductive code in the study and represent one of the ten key activities identified by the WHO for strengthening rehabilitation systems[242]. WHO specifically recommends partnerships between high and LMICs[242], suggesting roles for the International Federation of Societies for Hand Therapy as facilitators of networks. Within South Africa, networks and partnerships between the public and private health sectors are essential, given the inequitable spread of services and resources. However, principles 8 and 9 calls for collaborations to extend beyond the health sector and to facilitate a strong position for service users and communities to participate. Nurturing the voice and contribution of service users offers a way for hand therapy societies to use partnerships to strengthen hand therapy services.

Finally, *Responsive and anticipatory* (Principle 18) describes a critical characteristic of a model of care and a key principle for rehabilitation. Rehabilitation scholars have recently conceptualised this characteristic as a 'learning rehabilitation system' that cyclically identifies issues, develops and implements responses, monitors changes, and revises the response[243]. This characteristic facilitates progressive change in response to contextual needs and priorities and offers hand therapy in South Africa a systematic but achievable approach to responding to the unmet need for quality hand therapy services in South Africa.

PRINCIPLE 8: EMPOWERED CLIENTS & COMMUNITIES

Affirm, through rehabilitation, the autonomy, dignity, freedom of choice, abilities, expression of views and goals, and right to self-determination of clients, their families and carers, communities and populations by ensuring rehabilitation is a voluntary, collaborative enabling process where decision-making is shared and supported and facilitated by effective communication. Clients and communities are responsible for, and supported in taking action on matters affecting their health (including the care of assistive devices) and are included in service development & research. Rehabilitation workers are trained to facilitate empowerment and combat prejudices & stereotypes against people with disabilities. Information on rehabilitation availability and location is available to communities.

PRINCIPLE 9: INTERSECTORAL ACTION FOR VITAL COMMUNITIES

Leverage rehabilitation to build healthy and powerful communities by addressing the social, occupational and ecological determinants of health as a critical means to enabling individuals, families & communities to live independently and participate fully, using a community-based rehabilitation approach, interdepartmental (South African Police Service, Departments of Education, Social Development, Public Works and Labour) and intersectoral (public & private) action, to holistically address all the factors that influence health and affect people's participation in occupation.

PRINCIPLE 10: A VITAL WORKFORCE

Support a vital rehabilitation workforce of skilled and competent individuals committed to doing no harm, exercising care based on best available evidence, who maintain their knowledge, skill and performance through lifelong learning and participation in continuous professional development. Strengthen workforce capacity through: creation of additional posts at all levels (particularly at district level); a human resource strategy that is positioned to roll-out best practice; appropriate resources and infrastructure; state support for ongoing training (including to lead intersectoral action) that takes into account the need of both service users and service providers. Quality undergraduate education must train a diverse workforce (matches the demographics of the populations served), integrate principles of community-based rehabilitation, primary health care, and multidisciplinary care, and is closely associated to the clinical platforms where it uses both private and public services (across levels of care) for training.

PRINCIPLE 11: A SEAMLESS SYSTEM: INTEGRATED, CO-ORDINATED & MULTI-DISCIPLINARY

Strengthen a system that is people-centred, community-focused, multi (inter or trans) disciplinary, in which rehabilitation is fully integrated in all programmes and levels of care, is strengthened by intersectoral networks and partnerships (including private, NGOs, DPOs) and enabled by clear referral pathways and effective and responsive referral systems; and driven by the shared goal of maximising client outcomes.

PRINCIPLE 12: RESOURCES (INCLUDING ASSISTIVE DEVICES & TECHNOLOGY)

Secure and optimize utilization of infrastructure and resources. Ensure financing for assistive devices and technologies (that are accessible, affordable, appropriate, acceptable, sustainable, durable, culturally and environmentally appropriate) as a means to improving functioning; supported by procurement processes that don't inflate the cost. Promote availability of new and appropriate technologies for people with/at risk of disability.

PRINCIPLE 13: INFRASTRUCTURE & EQUIPMENT

Secure rehabilitation infrastructure (that accommodates all clinic/facility staff and essential equipment) and equipment (an essential rehabilitation input) to enable availability of assistive devices and service delivery (as key rehabilitation system outputs). Optimise utilisation of resources (human and physical) to utilise scarce skills.

PRINCIPLE 14: LEADERSHIP & GOVERNANCE

Strengthen leadership and governance for disability and rehabilitation. Ensure coordinated mechanism in government, held accountable by civil society, for action committed to in the Convention on the Rights of People with disabilities. Adopt an all-government approach, include non-government actors and directly involve State Treasury in rehabilitation issues. Develop strong leadership and political support for rehabilitation to ensure inclusion of rehabilitation in laws, plans and strategies, governance structures, regulatory and accountability mechanisms. Strengthen rehabilitation leadership and governance capacity, technical capacity and skills, foster rehabilitation networks and alliances. Secure appropriate financing for assistive devices and ensure use of appropriate procurement policies for assistive devices. Improve monitoring and evaluation of disability and rehabilitation services Ensure transparency and address the challenges of poor authority, accountability, marginalization of clinical processes, low staff morale, poor policy adherence, poor links between levels of care (bureaucratic processes operating at expense of clinical services). Implement a portfolio for disability prevention and rehabilitation services at provincial level with a coordinator in each district; and the establishment of appropriate rehab research programmes.

PRINCIPLE 15: FINANCING

Secure and expand financing as an imperative and key rehabilitation input towards universal health coverage. Financing should: include financial risk protection; be cost-effective; efficient; in accordance with values, principles and health policies; facilitate progressive inclusion of private providers in publicly funded system; sustainable (to ensure financially sustainable rehabilitation); include a budget for DPO subsidies; disability and rehabilitation staffing, rehabilitation facilities, equipment and materials (including assistive devices and budget to include replacement, repair & maintenance); ensure inclusion of rehabilitation in health insurance; demonstrate cost effectiveness of occupational therapy and rehabilitation; avoid silo funding; and responsive to demographic and epidemiological profiles.

PRINCIPLE 16: DATA FOR SERVICE IMPROVEMENT

Generate quality data for service improvement. Research for rehabilitation should be strategic (coordinated, and based on needs and priorities), collaborative (in partnerships with people with disabilities, their advocates, services users, networks), focused on activity and participation, enhance the health system (needs; availability and utilization; quality and outcome; cost) internationally comparable (use of ICF), and designed and carried out for implementation and utilisation (policy & practice). Capacity for *such* research should be strengthened. Effective data systems (population & institution-based) are needed to generate and record accurate morbidity & rehabilitation data based on ICF classification for service improvement.

PRINCIPLE 17: NETWORKS & PARTNERSHIPS

Networks and partnerships are integral to strengthening rehabilitation services and include international, public-private, and cross-sector co-operation, partnerships and networks.

PRINCIPLE 18: RESPONSIVE & ANTICIPATORY

Rehabilitation is to be responsive to the unmet and escalating need for rehabilitation, responsive to population demographics, the local burden of disease, societal and other contextual climates and changes, the professional practice context, human resource needs and service equity. Rehabilitation must be police informing and policy responsive, including PWDs/consumers in policy development and basing service development on situational analysis. Rehabilitation must be included in health financing/insurance and should be resilient in crisis and disaster.

Figure 4.4: Principles 8-18 articulate the *enablers of rehabilitation*

Strengths and limitations

This study presents a novel and robust application of framework analysis that produced an evidence-constructed lens through which policies could be analysed. A clear description of how the framework was constructed enables other researchers to adapt the method to similar projects. In contrast, the framework offers an analysis tool that can be adapted for other rehabilitation researchers.

To our knowledge, this is the first study that offers hand therapy community policy-based guidance for developing hand therapy services. The generic nature of the principles offers versatile applications beyond occupational therapy and hand therapy specifically. Substantial inclusion of occupational therapy policies may limit the application to other rehabilitation professions; however, reporting the sources of each principle allows the reader to extract principles based on policies relevant to their profession.

The initial list of policies identified for inclusion in the analysis was based on consultation with stakeholders and a general literature review during the protocol development stage of the larger project in which this study was embedded. A replicable, systematic search for policies was not conducted, which could have a limited potential bias in selection and ensured that key policies were not missed.

The analysis did not produce substantial guidance for hand therapy regarding the role of caregivers, the phases of care, and the settings in which services should be provided (Lenses 4-6). Only one policy addressing hand injuries and conditions was analysed, likely contributing to this limitation. It is also possible that this detail is contained in more operational policies and procedures at the provincial and district levels, a probability anticipated by one of the policy experts who reviewed the data sources prior to analysis (see Appendix 4). Missed policies may also have contributed to this limitation.

Additional policies and procedures fit the study's inclusion criteria but were not included in the analysis due to resource limitations or because the policies were released after data collection was completed. One example of such a policy is the *Referral Policy for South African Health Services and Referral Implementation Guidelines* released in August 2020[244]. It is anticipated that

the inclusion of additional policies would have demonstrated saturation of the principles generated from this study, but it may also have contributed new insights and directives.

4.4.6 Conclusion

Eighteen principles synthesised from 29 policy documents through content analysis articulate principles for rehabilitation. These principles offer rehabilitation leaders and managers key starting points for acidulating strategic plans for rehabilitation services. This will ensure that plans align with policy and create a strategic foundation for operational planning. This study was motivated by the need for policy directives specifically in hand therapy. Therefore, the results propose the following working vision for hand therapy service development in South Africa:

> *The goal of policy-responsive hand therapy services is to contribute towards full participation and inclusion of people with or at risk of hand injuries and conditions. This goal is pursued through quality, person-centred care positioned to affirm the equal worth of all citizens through equitable and accessible services. A balance between prevention, promotion, cure, rehabilitation and palliation services must exist. These services should include work interventions to support the right to work and, where delivered by occupational therapists, should hold participation in occupation, as it's chief concern. Achieving full participation and inclusion of people with or at risk of hand injuries necessitates the empowerment of clients and communities and intersectoral action. A vital hand therapy workforce must be trained and maintained and their work enabled by adequate resources, infrastructure and equipment, and an integrated, co-ordinated, multi-disciplinary approach. This is dependent on strong leadership and governance, adequate financing, the effective collection and use of data. Networks and partnerships should be leveraged and the hand therapy system should remain responsive and anticipatory to the changes needs and demands of context.*

The proposed vision will be presented to the Executive Committee of the South African Society of Hand Therapists (SASHT). If supported by the Executive, the study and the proposed vision statements will be presented to SASHT members in an interactive online workshop. The proposed vision statement will be voted on at the next annual meeting of SASHT members.

Finally, the framework for the study offers researchers a content analysis matrix that can flexibly be applied to other studies. Built on the literature on rehabilitation models of care, the framework allows data to be deductively searched for objectives and principles of care, the roles

of care providers, phases and settings of care, as well as critical enablers of successful care. The framework can also be easily modified to suit projects' deductive and inductive analysis needs. Updating the framework with emerging evidence will allow its application to identify policy strengths and gaps in terms of alignment with evidence.

CHAPTER FIVE: Novice participants' support and development needs (Study 2A)

5.1 Publication details

Chapter four is presented as a published article. The paper reports on the second study in the thesis that sought to describe the experiences of Community Service occupational therapists to identify their support and development needs and strategies to address them. The manuscript was published in *Occupational Therapy International*, a peer-reviewed, open-access journal that seeks to reflect the global practice of occupational therapy.

5.2 Journal details

Title of the publication: "Surthriving: Hand Rehabilitation: Proposing Interventions to Support Novice Occupational Therapists Working in Underserved Contexts

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5.3 Details of author contributions

The contributions made by each author are tabulated below using The Contributor Roles Taxonomy (CRediT)[156].

Table 5.1: Contributions made by each author – Manuscript 3

	Van Stormbroek	O'Brien	Van der Merwe	Myezwa
Conceptualisation				
Method				
Resources				

Manuscript writing draft				
Manuscript writing review and editing				
Supervision				

5.4 Copyright and Permission

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5.5 Published article: "Surthriving: Hand Rehabilitation: Proposing Interventions to Support Novice Occupational Therapists Working in Underserved Context

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Research Article

"Surthriving" Hand Rehabilitation: Proposing Interventions to Support Novice Occupational Therapists Working in Underserved Contexts

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Hand rehabilitation delivered to underserved South African communities is often the responsibility of novice or generalist occupational therapists. Novice therapists typically work with restricted supervision, support, and resources. Little is known about how these therapists should be supported in order to strengthen the services that they deliver. This study is aimed at understanding how novice occupational therapists in their first year of practice describe their experience of delivering hand rehabilitation in order to identify their support and development needs and propose interventions to address these needs. A qualitative instrumental case study design was used. Data were collected from novice occupational therapists ($n = 9$) who participated in an online community of practice. Data collection techniques included photoelicitation, facilitated reflection activities, and case discussion. Reflexive thematic analysis was employed. Trustworthiness strategies included reflexive writing, prolonged engagement, data source triangulation, member checking, and peer audit. Analysis generated three themes: (1) "submerged: I had to drown a little" captured participants' experience of being saturated by contextual features including poverty and poor basic management of hand injuries. (2) "Starting somewhere" captured participants' journey of treating patients with hand injuries. They transitioned from an initial sense of having "no idea" to developing "some idea"; their clinical reasoning was challenged when working with no diagnosis, unfamiliar presentations, or when contextual features rendered traditional approaches to therapy inappropriate. Finally, (3) "dynamics of 'surthrival'" captured elements that contributed to participants either thriving or merely surviving their hand rehabilitation experience. The proposed strategies identified in this study to address the support and development needs of novice therapists include interventions focused on systems and health services; learning opportunities to support competency and physical resources; and emotional support. Beyond application to the South African context, these strategies may be considered for supporting generalist or novice therapists delivering hand rehabilitation in other low- to middle-income countries.

1. Introduction

Hand injuries are common. Estimated to account for 20% of injuries presenting at hospital emergency departments [1], 34.4 million emergency department encounters were reported in the United States between 2009 and 2012, representing $180,4 billion in health care charges [2]. In two high-income countries, 29% of all unintentional injuries were hand injuries [3]. The burden of hand injuries in low- to middle-income countries (LMIC) is difficult to quantify due to gaps in hand injury data; however, this burden has been described as substantial and increasing [4, 5]. Despite limited data, sufficient evidence exists for hand injuries in LMICs to be considered a public health priority [4, 6, 7].

South Africa is no exception. Around 17 000 hand-injured patients are treated each year at just one of the

country's public hand surgery units [8]. In contrast to many other countries, interpersonal violence is central to the burden of hand injuries in South Africa [8, 9] and is commonly related to alcohol misuse [10–12]. Occupational injuries and road accidents also contribute to the burden [9, 13, 14], as is common in other LMICs [15–17]. Resources to respond to the burden of hand injuries vary considerably: the availability and quality of healthcare is uneven across South Africa with the majority of healthcare resources servicing the minority of citizens that have access to private healthcare [18]. Evidence suggests the same trend for hand-injury care services: hand care expertise is concentrated in the country's private sector and urban provinces [19], and most hand conditions are treated by health professionals insufficiently trained in hand injury management [20]. High rehabilitation staff turnover in the public sector [21] and the severe shortage of occupational therapists in South Africa (1: 10 000 population) [22] compound these challenges. Accessing scarce services is complicated by high levels of poverty and unemployment (55.5% [23] and 42.4% [24] of the population, respectively).

Rehabilitation after hand injury is essential. Most hand injuries are sustained by adults of an economically active age. Rehabilitation for individuals across the lifespan is important, but even more so for those whose injury to "the earning tool" [25] may devastate their livelihood. Rehabilitation of the hand is an area of occupational and physiotherapy practice that is commonly considered to require specialized skills [26, 27]. Despite this, this service very often falls to novice or generalist occupational therapists in the public health sector of South Africa. These therapists are either fully registered occupational therapists working in a generalist capacity or new graduates completing a year of compulsory community service (CS) in rural or underserved areas directly after graduation. They are required to deliver services across areas of occupational therapy practice, including hand rehabilitation.

The experience of community service occupational therapists (CSOTs) delivering hand-injury care was the focus of this study. Despite being in their first year of practice, these therapists work as generalists, have limited experience, and commonly receive poor support, supervision, and resources for their work [28, 29]. They are also often responsible for delivering occupational therapy services to rural populations who are considered to have the greatest healthcare needs in a context that is often complex [30, 31] and requires experience to navigate. Knowledge regarding their experiences and the needs and demands placed on these therapists for delivering hand rehabilitation was captured in one previous quantitative study [29]. However, an understanding of their support and development needs for hand rehabilitation, and how these needs should be met in a contextually responsive manner, remains unexplored.

This study thus sought to:

(a) Describe how CSOTs experience their delivery of hand rehabilitation

(b) Describe the support and development needs that emanate from this experience

(c) Identify strategies and interventions to strengthen the capacity of these therapists to deliver essential hand rehabilitation services

2. Materials and Methods

A qualitative descriptive instrumental multiple-case study design [32] was employed. This design recognizes that a case and context cannot be easily separated [32], which is particularly relevant for the population being studied as contextual features are known to influence their practice [28]. The case study was instrumental to enable a study of therapists' experience to produce an understanding of their support and development needs. The design resonated with the constructivist beliefs that directed the inquiry towards understanding the meaning that participants ascribed to their hand rehabilitation experience. Further details on the first author's positionality may be viewed in Supplementary File 1.

Purposive sampling is recommended for case selection in case study research [33]. However, it was not possible to predict which CSOTs in a given year routinely treat patients with, or at risk of hand injuries. Therefore, invitations to participate in the study were distributed to CSOTs via professional organisations and social media. CSOTs who communicated interest in the study were invited to an online information session. Informed consent was obtained from nine CSOTs who were added to the online community of practice (CoP). Each participant assigned themselves a very specific pseudonym for anonymity and also to portray themselves within their CSOT role. Participants were spread across five of the nine South African provinces, in both rural ($n = 5$) and urban ($n = 4$) locations. Three participants ($n = 3$) were employed at primary healthcare clinics (the first step in facility-based healthcare services), three participants ($n = 3$) at district hospitals (district hospitals receive referrals from and provide support to primary healthcare clinics and community health centres), and three participants ($n = 3$) at regional hospitals (regional hospitals provide specialist support to district hospitals) [34]. A basic profile of each participant is outlined in Table 1. Ethical clearance was obtained from the The University of the Witwatersrand Human Research Ethics Committee (Medical) (M200235).

Data collection occurred between July 2021 and January 2022. The CoP met fortnightly on MS Teams and interacted on WhatsApp. Audio recordings of the meetings were transcribed, and the WhatsApp group chat was downloaded. Data collection techniques used within meetings included photo elicitation [35] and facilitated reflection activities. Professional development activities were planned in response to emerging needs. Transcriptions of the MS Teams meetings as well as the downloaded WhatsApp group chat, along with photos, illustrations, and facilitated reflection activities, were uploaded to NVivo 12 for thematic analysis. Further detail of data collection activities is presented in Table 2.

Braun and Clarke's reflexive thematic analysis (RTA) was used [33, 38]. The iterative steps of RTA taken were as follows: (1) data familiarisation (listening to recordings, reading transcriptions, and making notes); (2) generating

Table 1: Profile of the occupational therapist participants.

	Pseudonym	Location (level of healthcare facility, urban/rural setting, province)	No. hand-injured patients seen monthly
1	Illusionless Optimist	District hospital, rural, Eastern Cape	25
2	Dedicatedly Winging-it	Primary clinic, rural, KwaZulu Natal	30
3	Eager & Willing	Primary clinic, periurban, Gauteng	8
4	The Bad Grad	Regional hospital, urban, Gauteng	100*
5	Tired & Trying	District hospital, rural, Eastern Cape	40
6	Anxi-cited Outsider	Regional hospital, rural, Mpumalanga	32
7	Find-a-way OT	Regional, rural, Limpopo	32
8	Solo Worker Bee	Primary clinic, urban, Gauteng	40
9	The Growing Therapist	District hopistal, rural, Mpumalanga	20

*On orthopaedic rotation.

Table 2: Description of how data collection techniques were used.

Data collection tools and techniques	Procedure
Demographic online questionnaire	Participants provided basic demographic and practice data using an online survey (MS Forms)
Photoelicitation: "sharing experiences"	Participants shared photographs that captured aspects of their experience. Descriptions of the photographs and resulting group discussions were audio-recorded and transcribed.
Facilitated reflection using sentence stems [36]: "me in my setting"	Participants were given a page of sentence stems that prompted reflection on their community service contexts and their experience thereof. Completed sentences were shared with the group and uploaded in Word files to NVivo for analysis.
Authoring a congress abstract	Participants, along with the first author, wrote and submitted an abstract (title: *Hand therapy on the move – taking therapy to harder-to-reach communities*) that presented a practice innovation (portable hand therapy station) that the group planned to develop together. The abstract was uploaded to NVivo for analysis.
Facilitated reflection using the person-environment-occupation model [37]	Participants reflected on their experience of delivering hand rehabilitation using the person-environment-occupation model, reflecting on aspects of the occupation (delivering hand rehabilitation), the environment (complex healthcare context), and the person (their personal experiences, knowledge, skills, etc.) that influenced their experience across their community service year. Participants illustrated this transaction on paper and explained their experience to the group. Photos of the illustrations and transcribed audio recordings of the explanations were uploaded for analysis.
Real-time troubleshooting: case discussions on WhatsApp	The need to include a platform for "real-time" support emerged early in the study, and additional ethical permission was obtained to include WhatsApp as a data collection tool. Informal case discussions occurred on this platform as participants sought guidance and feedback.
Feedback on professional development activities	Experts were invited to the CoP based on emerging needs in the group. This also enabled the first author to focus on her role as a researcher. These sessions were evaluated in an online survey (MS Forms), and the data from the survey was uploaded to NVivo for analysis. (Professional development activities included "Clinical reasoning 101"; formal case discussions; basic biomechanical and treatment principles; management of the neurologically impaired hand; sensory reeducation and considerations for disability grant eligibility; and occupation-based hand therapy)
Online (MS Forms) evaluation experience	An online survey questionnaire was developed to evaluate participants' experience of the CoP. Data were downloaded to Excel and Word and uploaded to NVivo for analysis.
Workshop to prepare congress presentation	Participants' abstract was accepted. A hybrid workshop was thus arranged to develop the practice innovation. Participants, supported by the first author, systematically reflected on the occupational roles that their hand-injured clients engaged in; the contextual realities of their hand rehabilitation practice; and photographs of their community service year. Participants also reviewed local hand rehabilitation evidence. This data, used to inform the design of their practice innovation, was collaboratively developed on a Google Doc. A copy of the document was uploaded to NVivo for analysis.
Member checking	Analysis findings were presented to participants at intervals throughout the study. Feedback from these sessions was included as data for further/final analysis.

codes (all data coded inductively with some deductive codes added; a finalised codebook applied across all data); (3) constructing themes (codes and associated data examined and meaningful data patterns constructed through collapsing, combining, and clustering codes [39]); (4) reviewing potential themes with the study's participants and coauthors; (5) defining and naming the themes, and finally, (6) constructing the report. In keeping with the case study design, a vignette was constructed as a means of representing the data [40]. Due to the collaborative nature of data collection and a focus on cross-case analysis in this study, a composite vignette was chosen to provide a single account representative of all participants' experiences [40]. To compose the vignette, the first author reviewed participants' written reflections from the sentence stem reflective activity (see Table 2). Phrases that aptly captured contextual detail or key aspects of participants' experiences were highlighted for use in the vignette. The author's prolonged engagement with participants and data enabled her to weave imagery from photos and transcribed data into the depiction of participants' contexts and experiences captured in the vignette. Each element of the vignette can be traced back to the data. The vignette was also presented to members on two occasions to check that they could "recognise their experience in the research findings" (p.219) [41] and ensure that the vignette captured an authentic representation of their collective experience.

In order to propose strategies and interventions for therapists' support and development, the researcher systematically appraised each theme and subtheme. Notes were made of the experiences, needs, and demands described in each, and strategies and interventions were conceptualised to address these. The researcher reviewed the notes of proposed strategies and sorted these according to similar types or levels of intervention. The four categories were named as follows: systems and services; learning opportunities to support competence; physical resources; and emotional support. The proposed list of strategies within each category was presented to and discussed with participants in two online member-checking meetings. Participants provided verbal feedback on the strategies with some additional ideas being added while some participants chose to record their responses (e.g., participant 9) on an Excel document. Strong agreement was recorded, and additional ideas were added to the list of interventions (see Supplementary File II).

Reflexive thematic analysis, as an approach to thematic analysis, harnesses the researcher's subjectivity rather than seeking to attain a contrived sense of objectivity in analysis. The first author's personal experience as a CSOT in 2006 and prior research with the same population enabled her to ask insightful questions and probe astutely. However, RTA also directed her to evaluate and articulate her assumptions, perceptions, and positionality, and the potential impact of her subjectivity on the research process [42]. The use of reflexivity contributed to the strategies employed to ensure research rigor.

Rigor was pursued through attending to four components of trustworthiness [41]. Credibility was enabled through data source triangulation and reflexivity. The latter was pursued through reading [42, 43] and self-critical writing in which assumptions and positionality were examined (see Supplementary File 1). The first author examined the impact that a previous undergraduate lecturer-student relationship with five of the participants could have on power dynamics, as well as the freedom with which these participants shared. Conversely, the impact of these participants' familiarity with the researcher on the other four participants was considered, as well as the efforts made to support the sharing and engagement of all participants. The first author examined the impact that her own community service experience had on her interpretation of the data addressing the risk of more readily identifying and probing experiences that resonated with her own [39]. Prolonged engagement was enabled by frequent online interaction with participants from July 2021 to September 2022. In addition, robust member checking was conducted within the data collection/early analysis process, as well as after the analysis. Participants were presented with the research findings in an online group meeting and follow-up communication with individual participants. Strong agreement with the vignette, themes, and subthemes was recorded (see Supplementary File II). Participants recommended changes to the names of two subthemes to capture the range of experiences more accurately within the group. Participants also qualified their agreement with each subtheme to ensure that variance was appropriately captured in reporting. Data source triangulation and reflexive actions enabled confirmability of findings, while a description of participants' practice settings enable readers to evaluate the transferability of the findings. Dependability of findings was established through a dense description of research methods exposed to frequent scrutiny by the study's coauthors and by undergoing a formal auditing process by an experienced research colleague at the completion of analysis. The report submitted for auditing, which includes the finalised codebook, may be viewed here (Supplementary file III). Data is available on reasonable request from the first author.

3. Results

Results generated from the analysis are presented in three parts: a composite vignette of participants' experiences is presented in Table 3 followed by the themes and subthemes constructed from analysis. The proposed interventions to address the support and development needs identified in the data are presented at the end of this section.

Three themes and a number of subthemes were generated from the analysis. These are illustrated in Figure 1, and an account of each theme is provided thereafter.

3.1. Theme 1: Submerged—"I Had to Drown a Little." The name of theme 1 was drawn from the imagery suggested by one of the participants who said, "I had to drown a little" (Illusion-less Optimist). The theme describes the contextual features that characterised participants' experiences.

3.1.1. Circle of Poverty. The first subtheme, circle of poverty, captures the pervasive poverty that characterised patients' lives and encircled participants' work:

Table 3: Composite vignette of participants' experience of delivering hand-injury care.

"Welcome to my corner of the hand therapy world. It's beautiful – is not it? The rolling green hills dotted with rondavels (round mud huts) and grazing animals. Shacks and spaza shops (informal convenience shops) line the dirt road as I approach the hospital. The effects of poverty run very deep in this community, but so does a deep sense of community life: a sharing of life in both its beauty and struggles."
"This is a typical day: typical in that I navigated the same roads in my little Hyundai and waited patiently for the resident cows to cross our shared road. I am here completing a compulsory year of service after graduating – a strategy that my government uses towards delivering quality healthcare for all – especially rural and underserved communities."
"We'll start the day at the hospital with the psychiatry ward round. We have the cerebral palsy group at nine and then we can head out for two clinic visits and a home visit. Let us hope that the hand patients that I've booked are able to attend their appointments. Many travel 4 hours or more to the clinic so when resources are tight, follow-up therapy is not an option."
"My first patient, Mrs Jabavu, speaks English – this is great for me but very rare. You can just imagine how client-centred I manage to be most days gesticulating and using the 10 phrases of isi-Xhosa that I know. Collaborative goal-setting? How is that even possible without being able to communicate the basics?"
"Anyway, Mrs Jabavu tells me what happened to her hand: her husband beat her with an axe. I hold my pose. My horror. My anger for the wrongness of it all. And the fact that I will now proceed to attend to the, seemingly smallest of her problems – her lacerated hand. I scan her medical notes to understand what structures have been injured and hopefully repaired. But all I can find is, "For OT Assessment". As usual, I'll be figuring out this diagnosis on my own."
"I've felt overwhelmed by hands most of the year. My hand therapy knowledge and skill feel about as robust as my splinting equipment. You're on your own. It's all on you! You know nothing, or so it feels. You figure out the diagnosis and with some hope, you remember that you have a protocol for that! But this does not last long as you realise this patient had flexor tendon surgery six weeks ago and his hand remains safely wrapped in a Plaster of Paris backslab. At least that situation did not require me to make a splint with my 1.6 mm thick splinting material that expired 2 years ago in a frying pan that has two settings: boiling point and off. Anyway – back to Mrs Jabavu: I've learnt to acknowledge the panic and then remind myself: You know the basics. Start with the basics...."

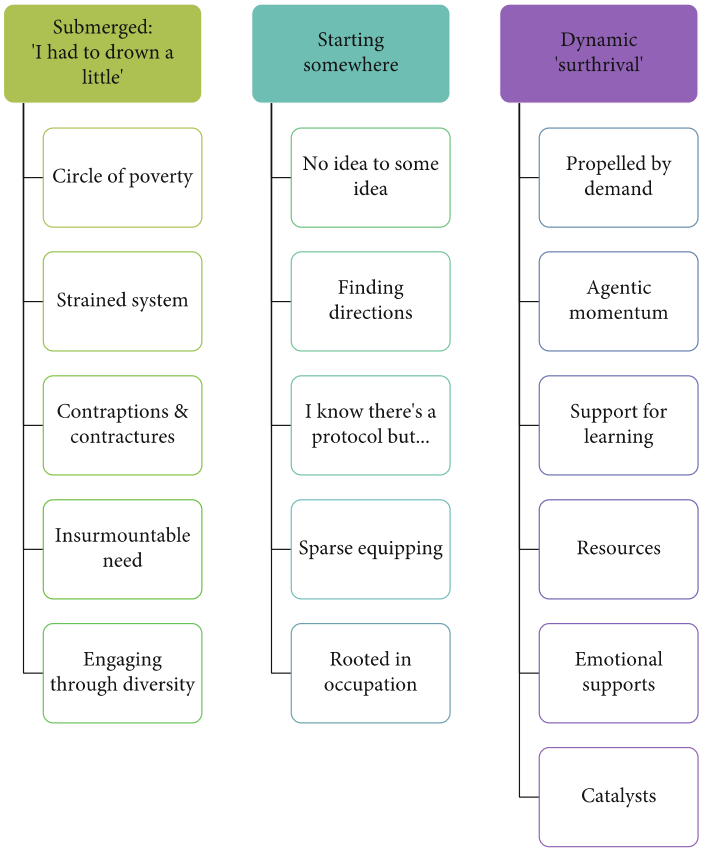

Figure 1: Themes and subthemes constructed through reflexive thematic analysis.

"People's lives are characterised by…their low socioeconomic statuses. Their livelihood(s) are focused on survival. Their occupations… are unfulfilled." Bad Grad

Echoing this description, numerous references to poverty were made by all participants. One of the rural therapists spoke about the historical marginalisation of the

province in which she worked and the impact this had on infrastructure and service delivery. Challenges to the latter were echoed by others and contributed to environmental barriers to patients accessing care, particularly in bad weather or when there was violence in communities. Participants spoke of encountering trauma and abuse and the high incident of injuries caused by interpersonal violence.

Unemployment affected all participants' practice. Injury-on-duty for manual labourers was common, and these patients were often employed casually. Patients would often not attend their hospital appointments to avoid losing their jobs, even when their injury had been sustained on the job. High levels of unemployment also came with a demand to assess eligibility for disability grants. Study participants perceived a need to engage in an advocacy role to prevent injuries and address poor labour conditions and the underlying social determinants of health and social and occupational injustice.

Poverty was also evident in the occupations of patients and communities: occupations were sparse or "unfulfilled" and resource-scarce environments provided restricted opportunities for engagement. However, despite this perceived deprivation, participants noticed the deep meaning and beauty that simple occupations held.

3.1.2. Strained System. "This (the strained system) was the centre of my experience…I often felt I was spending more time fighting the system than actually working with patients." Tired & Trying

This subtheme resonated with all participants, although *Bad Grad* clarified that her experience of the strained system at her large, urban hospital was "not as drastic" as resources and expertise were more readily available there.

Participants commonly reported a poor work ethic and a staff culture of complacency at work despite some staff being friendly and helpful. Despite some facilities being clean and neat, space in facilities to treat patients was a common problem. Patients had mixed experiences of healthcare; some patients reportedly mistrusted Western medicine and the hospital represented a place where you go to die. Participants reported needing to respond to the preconceptions that patients or staff had about them, demanding that they prove themselves within their role. Navigating relationships with colleagues and teamwork was challenging at times.

Working in the strained system placed numerous professional demands on participants including being assertive, resolving conflict skilfully, working independently, having patience and perseverance, and being adaptable. Being politically aware, having a knowledge of legislation and policies, and being able to align services with the district and primary health care plan, as well as having to report on services to management, were further perceived demands.

3.1.3. Contraptions and Contractures. This subtheme captures the poor medical and surgical management of hand injuries. One participant shared her frustration when a doctor had attempted to fabricate a Kleinert splint using padded aluminium splinting strips on the patient's wrist, syringe needles attached to the patient's fingernails, and elastic bands connecting each fingernail to the wrist splint:

"I had a patient walk into my office with some DIY dynamic splint made by a doctor that's not even…an orthopaedic surgeon, who did a tendon repair bedside…He (the patient) walked in with this contraption, like (a) very brief doctor's note and contractures in… 3 fingers. The wound went septic... It's very, very frustrating because I feel like the doctors... are also like guessing what to do with these patients and not managing them properly." The Growing Therapist

Medical management of hand injuries was largely inadequate. Insufficient doctors and problematic referral systems were common complaints. Orthopaedic services were limited, late presentation of injuries was common, and secondary complications were prolific.

3.1.4. Insurmountable Need. Participants were also submerged in an experience of insurmountable need. Two participants articulated aspects of this.

"Nobody in the hospital… can fix all these peoples' problems" The Bad Grad.

"The job makes me feel hopeless at times when I cannot help with the multitude of needs with my OT knowledge." Eager and Willing

Managing a diverse caseload contributed to the sense of need. Feelings of having "no idea" and being eager and anxious were common, as well as the sense of helplessness that came with being unable to help. Feeling challenged, angry, and frustrated was common.

The environment demanded empathy, participants commonly reported feeling tired and emotionally exhausted, and some felt at risk of burnout. One participant expressed the following on completion of her community service year:

"Burnout is real!" Solo Worker Bee

Amidst these realities, participants agreed that they needed to be able to prioritize needs, understand their own limitations, and have emotional intelligence. Good time management and conscientious hard work were demanded. They also had to be resilient and able to cope with stress, frustrations, and challenges. The realities also contributed to a need to be affirmed, heard, and understood. Participants shared how they tried to stay positive, found satisfaction in making small differences, and learnt to celebrate progress.

3.1.5. Engaging through Diversity. Diversity was another salient feature of the context in which participants were submerged. Language and cultural differences were most often mentioned, and both the challenges and personal growth associated with this experience of diversity were shared. One participant noted that in her urban practice setting, language and cultural differences were not as pronounced, rendering language barriers easier to overcome. This contrasts with the rural participant who compared her experience to her urban undergraduate experience.

"Thinking back on patients I saw as a student, it amazes me like, we actually had a conversation whereas I haven't really had a full conversation with a patient this whole year. Some people can speak a little bit of broken English, but that's about it. So that really affects... even just the interpersonal relationship that you can build with a patient it's very

limited which makes (one) feel quite isolated from one's patient, so it's difficult to connect."

As reflected in the quote, communication challenges were very common, placing demands on therapists to converse in the patient's language. Cultural barriers existed and necessitated an understanding and cultural humility from participants. Mention was made of the need to respond well to patients' traditional health beliefs and practices. The need for cultural humility resonated strongly with one of the participants,

"I had to be reflective and make a concerted effort to be aware of my cultural blinders such that I can recognise… (our) shared humanity." Dedicatedly Winging-it

Participants described many aspects in which their experience was different from "what I know". One participant explained how her prior exposure to diversity through family life had prepared her for difference, but for others, fitting in was a challenge. Despite this difference, participants marvelled at the sense of community that they witnessed and saw the beauty in the natural environment as well as the beauty of human participation in everyday occupation. Participants expressed gratitude and a sense of having grown and gained invaluable learning and life experience through their CS experience.

3.2. Theme 2: Starting Somewhere. This theme captures characteristics of the process or journey that participants experienced in delivering hand-injury care. The name of the theme is taken from *Bad Grad* who said that "everyone has to start somewhere". Five subthemes describe this journey.

3.2.1. No Idea to Some Idea. The journey of delivering hand-injury care was often started with a sense of having no idea:

"So now I'm kind of stuck. I have no idea where to go with this hand. She is coming back sometime this week and then I need to do something. And I have no idea what to do." Tired and Trying

Exclamations of "what is this?" and desperate questions of "what do I do?" were common. Participants typically felt overwhelmed in the beginning, finding the task of hand therapy daunting. Some reflected on feeling as if they had initially done more harm than good. A lack of confidence, a sense of inexperience, and questioning their competence were common.

The sense of "no idea" was, however, not terminal: participants demonstrated that they were willing and trying to find their feet. A gradual orientation towards "starting somewhere" was achieved. This came with a surprising sense of "doing better than one thinks." Gradually, participants acclimatised to thinking on their feet and experienced success and satisfaction in being able to "do something."

3.2.2. Finding Directions. This subtheme captured the challenge of clinically reasoning around hand injuries as an inexperienced therapist submerged in the contextual realities outlined in theme 1. One participant explained.

"I obviously didn't know much about hands at all, but I am an avid Googler…I am not shy of taking out my phone and looking up what or how or why. But there's also this thing about the lack of diagnosis...." Anx-cited Outsider

In addition to the challenge of unfamiliar conditions, this quote captures the compounded challenge of "finding directions" when patients have no diagnosis. Participants were required to clinically reason around chronic conditions as well as acute and traumatic injuries. They were frequently required to treat patients with fractures, poststroke upper limb impairment, and burns to the hand.

These demands were accompanied by a desire for learning opportunities, a need to learn by doing, as well as a desire to share their knowledge and experiences with others in similar contexts. They reported a need for knowledge and skills, along with support for developing basic hand therapy skills. They frequently sought guidance to aid their clinical reasoning, and feedback to consolidate and learn from their actions.

3.2.3. I Know There Is a Protocol but…. This subtheme communicates the complicated presentations and the advanced demands that this places on the therapist's reasoning. These "curve-ball" presentations are largely complications associated with contextual features.

"And then when a hand injury will come in that doesn't suit a certain box or like a certain picture." Tired and Trying

With protocols usually outlining typical presentations and timeframes, these were less useful when patients presented long after surgery or were never able to access surgery. Numerous challenges to follow-up appointments with patients and clinic outreach demanded mobile or travelling hand therapy services. Patient adherence was often problematic, demanding appropriate intervention guidelines, education, and home programmes that were responsive to these realities.

3.2.4. Sparse Equipping. Participants' journey of delivering hand-injury care was further characterised by sparse equipping on many fronts. Dedicatedly Winging-it explained some of these.

"I am the only OT (at my) Community Health Clinic there's no permanent staff... since 2017 in rehab... It's quite hectic... it's quite a busy clinic... I remember the first few weeks, was the most overwhelming thing I've ever experienced... especially with hands...(I) went from having absolutely no clinical experience (at university) ... And now … this three-year-old child that's just (burnt) his fingers, and now I must do stuff…It felt so unethical and I'd … run around trying to call my supervisor who's … in (a district) hospital and she's obviously also trying to be a therapist there, and finding out what I must do." Dedicatedly Winging-it

As evidenced in this quote, undergraduate preparation was considered by some to be inadequate with a lack of practical or fieldwork experience in hand rehabilitation being frequently highlighted. Supervision by more experienced clinicians was often absent or unsatisfactory. While therapists with supervision were grateful for any supervision, it was identified that this could be both an opportunity (for learning and support) but also a barrier to feeling free to explore therapy without a sense of being watched. Practice conditions were largely accompanied by a need for support and

a need for mentoring and supervision. Reflection as a way of "learning from yourself" was considered vital, demanding the necessary reflective practice skills to achieve this.

A number of participants who were the only occupational therapist in their setting found this to be challenging. Unsurprisingly, many expressed a need for colleagues and for the creation of occupational therapy jobs so that they would not be alone.

Existing courses were often not well suited to need, highlighting a gap for appropriate continuous professional development (CPD) opportunities. Circumstance also called for therapists to know how to search for evidence. Limited physical resources and inadequate hand therapy equipment were common. Although this provided an opportunity to nurture their resourcefulness and creativity, the need for resources was clear: appropriate splinting equipment, appropriate consumables (e.g., splinting material), versatile resources that could be used for a diverse generalist caseload, and appropriate assessment and treatment resources. Participants articulated a need for an organized treatment station that was portable and ergonomic.

3.2.5. Rooted in Occupation. This subtheme captures another dimension of participants' journey: the consolidation of their appreciation of occupational therapy for patients with hand injuries. Some participants started the journey perceiving a disjuncture between hands and occupational therapy.

"So, I guess as a student I kind of felt that hands was kind of more physio-ish. I didn't really see it as being that OT." Illusionless Optimist

For this therapist and a few others, there was an initial dislike or disinterest in hands. However, their journey of hand-injury care in CS was integral to appreciating the role of occupational therapy in hand rehabilitation and the link between the hand and occupation.

Participants endeavoured to understand what occupations people use their hands for. In rural contexts, this meant understanding and being able to analyse unfamiliar occupations, like cindering a floor (a process of sealing and polishing the floor of a hut using a mixture of cow dung and mud, typically performed in four-point kneeling). This learning was accompanied by a need to "figure out" activity and occupation and to deliver therapy that was occupation-based. This demanded resources for occupation-based hand therapy and a desire for activity ideas so that they did not feel like they were using the same activity with every patient.

3.3. Theme 3: "Dynamics of Surthrival." The third and final theme sought to capture various dynamics that either supported or enabled growth and learning and a strong response to the demand for hand-injury care or dynamics that hindered this. The theme resonated strongly with participants, one of which explained it as "the transition between thriving and just surviving."

3.3.1. Propelled by Demand. The first subtheme interpreted the *diverse caseload* that participants had as an antecedent for growth: the demand for hand-injury care forced them to learn. Their experience of engaging in the task of hand-injury care was, however, a dynamic experience, accompanied at times by more or less of an experience of thriving or surviving. Illusionless Optimist expressed the following:

"I was just thrown in the deep end, and I was the only OT and I had to somewhat drown. Which has been negative in some ways because like there's no-one to check if you are doing things right, if you're stuck, then you're stuck. But then I think it also has been in other ways positive because it's forced me to learn and read up and like really investigate hand injuries." Illusionless Optimist

3.3.2. Agentic Momentum. An additional propelling force was the sense of agency exercised by participants to respond to the demand for hand-injury care. Participants were aware of their responsibility to deliver quality care and actively sought ways to enable this. Evidence of this included voluntarily joining the CoP and efforts to access expertise from a referral facility described in the following quote:

"So, what I actually did was I did go to (a regional hospital), I asked to join them for almost like a job shadowing, for two days just doing their hands OT. Just because in the beginning I was very overwhelmed. With how many hands patients and feeling very inexperienced." Solo Worker Bee

Further evidence of agency was seen in participants taking initiative, immersing themselves in their context, researching, and reflecting. They established support networks, sought support and expertise, made attempts to cross language barriers, and embraced learning-by-doing. They negotiated the need for reasoning around hand injuries through problem-solving, thinking on their feet, and going back to basics. When unsure of how to proceed with a patient, they contained their uncertainty by focusing on clients' occupational participation and function. Exercising agency was further evidenced in participants identifying their own support and development needs.

3.3.3. Support for Learning. This subtheme communicates the supports that enabled growth and a shift towards thriving. Participants considered it important to appreciate that the inverse was often true when supports were not in place.

As evidenced by this quote, case discussion and support for clinical reasoning were experienced as helpful.

"The most valuable aspects of her session was talking through cases and getting advice on how to approach them. This helped to grow my clinical reasoning as well as provide mentorship that was desperately needed." Anonymous

In addition, undergraduate preparation, reflecting and discussing with colleagues, appropriate courses, social media, and relationships with doctors were identified as additional supports for learning in hand-injury care.

3.3.4. Resources. The absence or presence of physical resources for hand rehabilitation and the presence or absence of upreferral resources were significant in the participants' experience. Solo Worker Bee shared,

"I referred (the patient to the regional hospital) just because I honestly didn't know what to do with them."

By contrast, the Find-a-way OT shared,

"(I) was as not able to refer as I was the up referral… unless I sent them to a provincial hospital, but because of the resources (travel and others) it was never possible for a patient to go there, and the hospital was also not always able to see them due to their own high patient numbers. So I never had any patient actually be upreferred."

Similarly, participants shared contrasting experiences around the availability of treatment modalities and physical resources for hand rehabilitation.

3.3.5. Emotional Supports. The need for emotional supports is captured in this subtheme. Participants shared that becoming desensitized or dissociating were common protective emotional responses with some participants using debriefing and the setting of boundaries to cope emotionally. Emotional support was largely accessed through family and friends, colleagues, and other CSOTs. The affirmation received through patient feedback also acted as an emotional resource. Some participants indicated that staying home or being able to visit home was a support. One participant felt that if she had been able to stay home and access her usual supports, this would have been an enabler. Exposure to abuse and violent crime made emotional support essential and one participant shared.

"(I) needed a psychologist to make it through the year." Tired and Trying

3.3.6. Catalysts. Immersed in the data over an extended period made apparent to the researcher that there were certain factors that "hit-the-spot" in terms of participants' support and development needs. These factors acted as catalysts for moving in the direction of "thriving." One catalyst, the presence of immediate or real-time support, is evidenced in the following quote:

"Access to mentorship programmes and real-time support/CoP is a wonderful benefit!" Eager and Willing

Although peer support was used, having access to expertise was considered invaluable. The proximity of support mattered: in situ support was desired. Support that was specific or responsive to emerging needs was also valued over generic input or teaching. The CoP as a mode of learning and support also proved to be a catalyst for thriving due to its versatility in meeting many of the needs articulated by participants.

3.4. Proposed Interventions to Address Support and Development Needs. The proposed interventions identified through participants' experiences are listed in Table 4 and discussed in the next section. The subthemes from which each intervention was extrapolated are indicated in brackets in Table 3.

4. Discussion

This study is aimed at describing the experiences of novice occupational therapists delivering hand rehabilitation in order to identify their support and development needs. An extensive list of proposed interventions was developed, key aspects of which are discussed in this section.

4.1. System and Service-Related Interventions. The pervasive impact of poverty on the practice and experiences of participants necessitates action that extends beyond the health sector alone. Global [44] and national [45] development goals highlight the need to address the social determinants of health (e.g., decent work and fair employment; income and wealth; and healthcare [46]) and the intersectoral action that is required to do so [47]. Occupational therapy's expertise in understanding the relationship between people (individual/collective), occupation, and the environment, as well as the social and occupational injustices that may be entrenched and enacted through this transaction [48], makes occupational therapists invaluable to systemic development. In South Africa, the ongoing and urgent need to position occupational therapists in all government sectors to influence and implement policy requires the occupational therapy body to renew the reputation of the profession through evidence-supported advocacy. This need is likely not limited to South Africa [49].

The strengthening of systems within the health system is also essential to supporting novice therapists in their hand rehabilitation work. Improvement of the basic management of hand injuries and conditions across the care continuum is needed with particular focus on the medical and surgical management of injuries [50]. It continues to be necessary to address the inequitable distribution of doctors in South Africa [51] as well as the shortage of orthopaedic surgeons [52]. Task shifting and support strategies hold promise [52] but need to produce quality care. The compulsory research projects conducted by medical and surgical residents in South Africa could be leveraged towards this need to ensure that the solutions developed are adequately informed by "local knowledge" (p.1080) [50]. Embedding these Master's studies within strategic, interdisciplinary, and intersectoral public health projects would be valuable in maximising their impact.

Strengthening referral systems for hand-injured patients also requires attention. Referral challenges expressed by participants were specific to their contexts and the factors that affect the functioning of health systems are known to be complex [53]. Appreciating this, the flexibility of participatory action research may be well suited to addressing specific referral system difficulties and associated problems within specific subdistricts, districts, and provinces.

Appropriate human resourcing is likewise needed to address the persistent language discordance highlighted by participants. Recruiting of occupational therapy students who reflect the language and cultural demographic of patients served by the public sector should continue to be a priority for training programs [54]. There remains, however, a need for the training and appropriate collaboration with interpreters [55] to enable adequate communication that supports quality care.

Novice occupational therapists need to be supported by access to expertise. Accessible (proximity and immediacy) support and supervision are essential, and the role of therapists with expertise or specialist training is essential to service quality and sustainability [56]. The staffing and retention of occupational therapists in the public sector continue to be problematic and require urgent attention. In the interim, innovative models for support and supervision (e.g., group

Table 4: Proposed interventions to address identified support and development needs.

Identified interventions (subtheme/s from which intervention was extrapolated)
A. System/service-related interventions
(i) Systemic development (1.1) (ii) Occupational therapy human resourcing in other public sector departments (1.1) (iii) Improvement in basic management of hand injuries/conditions (1.3) (iv) Strengthening human resources (medical and surgical) (1.3) (v) Strengthening referral systems (1.3; 3.4) (vi) Human resourcing of occupational therapists to reduce language discordance (1.5) (vii) Interpreters (1.5) (viii) Human resourcing (2.4) (ix) Strengthening supervision capacity (2.4) for responsive supervision (3.3) (x) Accessible (immediacy and proximity) support and supervision (3.6) (xi) Access to expertise (3.6)
B. Learning opportunities to support competency
(i) Guidance and feedback (2.1; 2.2) (ii) Support for the development of knowledge, skill, and clinical reasoning (2.1; 2.2) (iii) Accessing appropriate evidence (2.2) (iv) Management of acute conditions and injuries (2.2), chronic conditions (2.2), burnt hand (2.2), fractures (2.2), and stroke upper limb (2.2) (v) Reasoning around disability grant eligibility (2.2) (vi) Supporting adherence (2.3) (vii) Strengthening undergraduate curricula (2.4) (viii) Practical undergraduate experiences (2.4) (ix) Regular opportunities to develop knowledge and skill (2.4) (x) Strengthening resourcefulness, creativity, and innovation (2.4) (xi) Fostering enjoyable undergraduate hand therapy experiences (2.5) (xii) Strengthening occupational focus in undergraduate hand therapy teaching (2.5) (xiii) Occupation-based hand therapy opportunities (2.5) (xiv) Understanding indigenous occupations and drawing them into therapy (2.5) (xv) Supporting development of agency (3.1) (xvi) Supporting development of lifelong learning practices (3.1) (xvii) Resilience (including coping strategies, building/harnessing support networks) (3.3) (xviii) Strengthening undergraduate experiences (3.5) (xix) Individual and group reflection (3.5) (xx) Case discussion (3.5)
C. Physical resources
(i) Applications to assist with language learning and to support communication (1.5) (ii) Appropriate guidelines for managing conditions (2.2; 2.3) (iii) Appropriate home programmes (2.3) (iv) Mobile assessment and treatment resources (2.3) (v) Appropriate hand therapy resources (2.4) (vi) Resources suitable for a diverse caseload (3.2) including resources for occupation-based therapy (2.5) (vii) Activity ideas (2.5) (viii) Appropriate resources (3.4) (ix) Appropriate courses (3.5)
D. Emotional support
(i) Preparation for CS to know what to expect (all themes) (ii) Processing experiences: debriefing/sharing (all themes) (iii) Supported reflection (all themes)

mentoring and supervision, Communities of Practice) can be utilised where supervisors are compensated with continuous education units for participating in supervisor development activities and facilitating support and supervision groups. Engaging short courses that strengthen supervision capacity, increase satisfaction with supervision, and enable responsive supervision should be considered.

4.2. Learning Opportunities to Support Competency. Therapists require opportunities to develop the knowledge, skill, and professional behaviours across the lifelong learning continuum, which begins with strengthening undergraduate (UG) curricula. Fostering enjoyable UG experiences in hand rehabilitation [29], strengthening the occupational focus in undergraduate hand therapy teaching [57], and enabling

practical hand rehabilitation opportunities [29] were highlighted in this study, as has been previously reported. This is challenging within pressured undergraduate curricula, large class sizes, and limited fieldwork placement options. Exploring the use of final-year elective fieldwork placements holds promise, providing they are carefully crafted to meet the identified learning needs. The authors plan to explore this further in a separate paper.

Regular opportunities to develop knowledge and skills were identified in this study, including the management of acute and chronic conditions and injuries, including the burnt hand, fracture management, and the poststroke upper limb. Learning opportunities to develop competencies for supporting patient adherence, accessing evidence, and assessing for disability grant eligibility are needed. Additionally, opportunities to develop agency, resilience, resourcefulness, creativity and innovation, and lifelong learning behaviours are needed. Solutions that respond to these needs should facilitate guidance and feedback that supports the development of clinical reasoning, which includes individual and group reflection and case discussions.

4.3. Physical Resources. Therapists cannot be expected to provide rehabilitation services without being equipped with the necessary resources. Assessment and treatment resources that can be easily carried between service sites, suitable for a diverse caseload, and that support occupation-based practice are needed. These resources need to be available, sustainably stocked, and easily procured. The participants and first author of this study developed a portable hand therapy station that is currently being trialled in two rural settings in South Africa. Feedback from this project will provide valuable data for a well-designed product and will be shared with the international therapy community to enable duplication of the practice innovation in other contexts.

In addition, there is a need for appropriate clinical guidelines that are principle-based and factor in contextual features including the absence of surgical services. Participants stated that they need appropriate home programmes, activity ideas, and continuous professional development opportunities that are suited to their level of expertise and context. Finally, mobile device applications for language learning [58] and to support communication [59, 60] between therapists and their patients should be explored to overcome language discordance.

4.4. Emotional Support. All themes constructed in this study spoke to participants' need for emotional support. Participants all agreed that preparation for their year of compulsory service would be valuable in developing realistic expectations and preparing oneself to access support. The pervasive need to debrief, share experiences, and receive support for reflection could be well served by online group mentorship or communities of practice.

4.5. Who Should Intervene? The robust list of needs and interventions begs the question: who should intervene? Some needs are clearly the responsibility of a particular stakeholder: the Department of Health, for example, is responsible for providing equipment and resources for basic service delivery. However, many of these recommendations serve as an invitation to a diverse group of stakeholders to collaboratively, innovatively, and for mutual benefit, support novice occupational therapists in extending hand rehabilitation to populations with the greatest need for this service. Opportunity exists to look beyond the needs in South Africa and to explore international partnerships across high, middle, and low-income contexts to address common challenges to hand therapy service provision and support the cadre of therapists that deliver these services globally.

4.6. Strengths and Limitations. This study is the first to identify support strategies for novice generalist occupational therapists required to provide hand rehabilitation services in underserved contexts. Robust strategies were used to strengthen the trustworthiness of results, although a somewhat limited description of individual participants and their contexts may limit readers' ability to assess the transferability of findings to other practice contexts. Diverse data collection techniques proved challenging to manage but provided an opportunity for data triangulation and strengthened the benefits that participants were able to derive from the research.

5. Conclusion

This study elicited not only richly descriptive experiences of community service occupational therapists doing hand therapy in underserved South African contexts but also proposed strategies for the support and development of novice, generalist occupational therapists delivering hand rehabilitation in these settings. Three themes communicate participants' experience of delivering hand rehabilitation as novice generalist occupational therapists: (1) "submerged: I had to drown a little" illustrates key contextual features that characterised their experience including pervasive poverty and a struggling health system. (2) "Starting somewhere" conveys participants' journey of treating patients with hand injuries. They transitioned from an initial sense of having "no idea" to developing "some idea" while being challenged by unfamiliar presentations, no diagnoses, or traditional approaches to therapy proving inappropriate for their settings. Finally, (3) "dynamics of 'surthrival'" captured aspects that enabled thriving or contributed to merely surviving hand rehabilitation. Key areas for intervention were identified from participants' experiences; systems and health service interventions; opportunities to develop the necessary knowledge, skill, and professional behaviours; appropriate resources; and emotional supports. These strategies may be considered for supporting generalist or novice therapists delivering hand rehabilitation in other underresourced contexts.

Data Availability

Data is available on reasonable request from the first author.

Disclosure

The statements made and views expressed are solely the responsibility of the Fellow.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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Supplementary Materials

Supplementary 1. Positionality statement of first author.

Supplementary 2. Record of member checking conducted with all participants.

Supplementary 3. Report of analysis process submitted for auditing.

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CHAPTER SIX: Participants' Experience of a Virtual Community of Practice (Study 2A)

6.1 Manuscript details

Chapter six is presented as an in-press article. The article reports on the novice (Community Service) occupational therapists' experience of the benefits of the Community of Practice (CoP) that was used as a tool for data collection for study 2A. The article reports the feedback that participants provided on the experience of participating in the CoP through an anonymous online survey questionnaire. *Rural and Remote Health* has accepted the article for publication. The Journal publishes work relevant to healthcare in rural and remote regions globally.

6.2 Journal details

Title of the publication: Virtual Communities of Practice for Novice Occupational Therapists: A Vehicle for Learning, support and Professional Identity Strengthening?

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6.3 Details of author contributions

The contributions made by each author are tabulated below using The Contributor Roles Taxonomy (CRediT)[156]. Details of the taxonomy can be viewed in Appendix D.

Table 6.1: Contributions made by each author – Manuscript 4

	Van Stormbroek	O'Brien	Van der Merwe	Myezwa
Conceptualisation				
Method				
Resources				
Manuscript writing draft				
Manuscript writing review and editing				
Supervision				

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6.5 Published article: Virtual Communities of Practice for Novice Occupational Therapists: A Vehicle for Learning, support and Professional Identity Strengthening

6.5.1 Abstract

Healthcare practitioners delivering services in rural and underserved areas need timely access to appropriate knowledge to optimise their care. Novice, generalist occupational therapists in South Africa experience this need as they respond to the high demand for hand therapy. Embedded within a study aimed at identifying their support and development needs, this paper describes participants' experience of a virtual community of practice.

A qualitative case study design was employed. Nine occupational therapists participated in a virtual community of practice that met fortnightly for meetings and interacted on *WhatsApp*. Data were collected through photo elicitation, facilitated reflection, and case discussions. An online survey questionnaire was used to evaluate participants' experience of this virtual community. Thematic analysis was applied to the anonymous responses submitted by participants (n=7). Several strategies were employed to ensure the trustworthiness of results, including prolonged engagement, member checking, peer examination, reflexive reading and writing, triangulation, and a dense description of participants to enable readers to evaluate the transferability of results.

Three themes were generated from the analysis. The first theme, *versatile support,* describes participants' experience of being helped and supported, appreciating the immediacy of support, and being able to share resources. *A vehicle for learning* captures participants' experience of mutual learning, an opportunity to reflect, acquire knowledge and skills, and to develop their clinical reasoning. Finally, the community of practice was *grounding*: learning opportunities were contextually relevant, and participants could consolidate their professional values and identity. Participants raised the importance of using accessible online platforms, recommended a group size of 5-10 members, and proposed 60-90 minute meetings held weekly or fortnightly.

A virtual community of practice provided both support and professional development opportunities for therapists delivering hand therapy. Careful planning and implementation to upscale this intervention are recommended for rehabilitation personnel delivering care to underserved communities in South Africa. The logistics of virtual communities must mitigate connectivity difficulties, and online platforms should enable real-time support. Participant

satisfaction and the evaluation of implementation outcomes should be considered when designing virtual communities of practice.

6.5.2 Introduction

Around 40% of the population in South Africa lives in rural areas; despite carrying a disproportionate burden of disease, rural communities experience more significant barriers to accessing healthcare than urban residents[245]. The responsibility for rehabilitation services in rural and underserved parts of South Africa frequently rests on a group of novice practitioners completing a year of compulsory Community Service after graduation. Community Service for health professionals is a human resourcing strategy the South African government implemented two decades ago to strengthen public health services in rural and underserved settings[3]. The strategy has proved to be an effective recruitment strategy[246], substantially increasing the number of occupational therapists and other rehabilitation personnel in the public health sector[247].

Community Service does not, however, significantly improve the retention of staff in rural and underserved areas[3]. The annual turnover of this staff cadre presents challenges to service continuation and expertise retained within these services. Inadequate management, support, and supervision[12,246,248] have frequently been reported in a study of occupational therapists who completed their Community Service in 2013, 65.9% (n=60) reported dissatisfaction with supervision[12]. In a smaller 2019 sample of Community Service occupational therapists, 40% (n=30) were dissatisfied with supervision, and a further 22.67% (n=17) did not have a supervisor, suggesting minimal improvement in satisfaction between the two studies. The latter also suggests an increased vulnerability to burnout: therapists dissatisfied with supervision or reported minimal social support were more likely to report emotional exhaustion as one of the three components measured for burnout (p=0.02 and p=0.01, respectively)[248].

Understanding the typical practice characteristics of Community Service occupational therapists provides some context for their vulnerability and need for support. These therapists are young (usually 23 years old) novices navigating the transition to clinical practice[12,248], for which they are typically required to relocate[12]. Most of these therapists are placed in underserved settings[12] where services are underdeveloped or where they are the

only occupational therapists. Around 40% of therapists are placed in rural settings for their first year of practice. This may also be the first exposure to rural practice[12,248] for those therapists who complete their Community Service in rural areas. Occupational therapists with experience are known to move out of public health services into South Africa's private health sector after gaining a few years of experience within state services, which has detrimental effects on service delivery[47].

Community Service occupational therapists typically work in a generalist capacity, intervening across multiple areas of occupational therapy practice. One area of practice that these novice therapists have reported as being challenging is hand therapy[67]. The demand for hand therapy is substantial due to high levels of hand trauma caused mainly by interpersonal violence, road accidents[249], and work-related injuries[32,33]. Despite the high demand for hand therapy in the public sector, most therapists with more than five years of experience work in the private sector[33]. Most members of the South African Society of Hand Therapists work in the private sector and urban centres[176], suggesting limited hand therapy expertise being available to Community Service occupational therapists working in rural or underserved areas. Research has recommended further investigation into the support and development needs of these therapists for hand therapy to enable sustainable and effective interventions that are responsive to the needs of therapists and the healthcare context[12]. The purpose of this study was thus to describe Community Service occupational therapists' experience of delivering hand-injury care to identify their support and development needs. Previous work with this population has also recommended using collaborative research approaches that enable these therapists to actively participate in identifying their own needs and articulating strategies to address these[12].

To facilitate data generation while supporting the co-construction of knowledge between the researcher and participants, a virtual community of practice (VCoP) was selected as the medium for data collection. A community of practice (CoP) is "a group of people who share a concern or a passion for something they do & learn how to do it better as they interact regularly"[2(p.11)]. A VCoP, or online community of practice (OCoP), is a group that uses the internet to engage with others with the same interests or concerns[6] to share experiences and expertise[7].

A CoP acts as a 'container of social learning' and has three structural components: a *domain* or specific capability that is important to members, a *community* or specific composition of group members, and an area of *practice* that becomes the focus of engagement for members[2]. In this study, hand therapy delivered by generalist occupational therapists was articulated as the CoP domain, and novice Community Service practitioners and researchers constituted the community. Delivering better hand therapy was the practice focus of the group. Because community members were geographically dispersed, a VCoP was chosen.

CoPs are characterised by sustained learning partnerships between practitioners who commit to interacting regularly to collectively and individually improve a specific capability. This commitment to learning together over time is what differentiates CoPs from other more informal social learning spaces[2]. Evidence of the support and learning needs of generalist occupational therapists[12,67,248] suggested that a CoP could act as an effective data collection tool: the researcher gathered data on participants' support and learning needs. At the same time, members accessed support and negotiated learning to improve their hand therapy practice. Data collection would also offer substantial benefits to participants, including journal club sessions, sharing of resources, and learning support. Community service is a 12-month contract, and few therapists continue in the same practice setting upon completion of this service period. So, while joining the VCoP constituted a decisive commitment to the community, it was constituted to last only until the completion of their service year rather than involve long-term involvement, which is typical of CoPs. The choice of an online data collection method during proposal development in 2019 proved fortuitous when COVID-19 restrictions challenged in-person research activity during 2020 and 2021.

The VCoP proved to be a dynamic data collection tool, and the benefit that participants appeared to draw from the community was substantially more significant than anticipated. To understand these benefits, this paper aims to report on participants' experience of the VCoP for supporting the delivery of hand therapy services by novice generalist occupational therapists working in rural and underserved areas. The paper is situated in a broader study that sought to extrapolate therapists' hand-injury care support and development needs from an account of their practice experiences.

6.5.3 Methodology

This study employed a qualitative case study design. Invitations to participate in the study were circulated via social media, and interested Community Service occupational therapists attended an online information session about the study in June 2021. Nine (n=9) therapists provided informed consent to participation and data collection from July 2021 to January 2022. Meetings were held on *Microsoft Teams* every two weeks, and each meeting lasted around 90 minutes. Data collection techniques used during meetings included photo-elicitation and facilitated reflection activities. Continuous professional development activities were also arranged based on emerging needs in the group, and subject experts were invited to present on these topics. These included formal case discussions, a session on clinical reasoning in hand rehabilitation, basic biomechanical and treatment principles, management of the neuro-hand, occupation-based hand therapy, considerations for disability grant eligibility, and sensory re-education. A need emerged early in the study for a platform to facilitate real-time support. Thus, additional ethical approval was obtained to include *WhatsApp* as a data collection platform that enabled participants to 'troubleshoot' clinical challenges, obtaining guidance and feedback from each other and the researcher. Online methods are the preferred method of VCoP evaluation[250], so an anonymous online survey questionnaire (see Table 6.2), distributed using *Microsoft Forms,* was used to capture participants' experience of participating in the VCoP.

Table 6 2: Questions included in the online survey to evaluate members' experience of VCoP participation

Questions:
1. Please share what the Hands Community of Practice has meant to you as you reflect on your year as a Community Service occupational therapist doing hand therapy (amongst many other things).
2. What was the most valuable aspect/s of the Community of Practice?
3. What about the Community of Practice did not work / what would you change?
4. Would you advocate for a Community of Practice as a vehicle of learning for Community Service OTs? Why/Why not?
5. Would you advocate for a Community of Practice as a vehicle for learning specifically for novice/generalist therapists delivering hand therapy in rural, remote or underserved areas?
6. Is a Community of Practice well suited to supporting generalist therapists in rural/remote/underserved areas for treating hand-patients specifically?
7. How many members in a CoP do you think is ideal?
8. How often should a Community of Practice meet? Why?
9. If you could choose one super-power to help you respond to the needs of your hand-injured patients, what would it be?
10. What advice would you give the 2022 occupational therapists regarding responding to the needs of hand-injured patients?
11. Please can you comment on the usefulness of the *WhatsApp* group to your support and development in treating hand patients? What was particularly helpful? / not helpful
12. Please comment on the sessions provided by [*Expert 1 on* basic clinical reasoning in hands, case discussions, scar and wound management and sensory rehabilitation
13. Please comment on the session provided by [*Expert 2 on treating the neuro hand]* identifying the most valuable aspects / things that worked well and things you would change.

14. Please comment on the session provided by *[Expert 3 on eligibility for disability grants]* identifying the most valuable aspects / things that worked well and things you would change.
15. Please comment on the session provided by [Expert 4 on occupation-based hand therapy] identifying the most valuable aspects / things that worked well and things you would change
16. In our first session together you gave yourself a self-description or "stage name" (pseudonym) (e.g. "The opportunist", "Trying", "loving and caring", "the find-a-way-OT", "Strong, creative and kind"). At the close of your Community Service year, if you had to look in on yourself and your practice, what name would you give yourself?
17. Please share anything else that you would like to about the Community of Practice, your experience of treating hand patients etc.

Meetings of the CoP on Microsoft Teams were recorded and transcribed. The *WhatsApp* chat was downloaded. Data were managed and analysed thematically in *NVivo 12*. However, the data that evaluated participants' experience via online survey was also downloaded as an *MS Word* document and analysed manually for the specific purpose of this paper. Reflexive thematic analysis[251,252] was used within the broader study as the type of thematic analysis suited to the researcher's constructivist paradigm and pragmatic approach to the research question. Analysis commenced in January 2022 with the printing of the survey data, reading through this data and making notes. Data was then coded. An additional response was received from a participant in May 2022. A finalised coding list was re-applied to all data in May 2022, after which themes were generated. These themes were presented to participants in an online member-checking interview as well as to the co-authors of the study. Themes were then finalised, and a report of the study was generated. Demographic data, excerpts from transcriptions, and self-assigned pseudonyms were used to construct simple vignettes for each participant (see Table 6.3) to provide context for their experience of the CoP and to allow the reader to evaluate the transferability of findings.

The trustworthiness of results was strengthened through a number of strategies[234]. Credibility was established through prolonged engagement and frequent interaction with participants between June 2021 and June 2022. Member checking assessed participants' ability to 'recognise their experience in the research findings'[234(p.219)]. A study report containing the raw data, coding of data and theme construction was submitted to an experienced research colleague for examination. In addition, the first author engaged in critical reflection during the research process to develop insight into her subjectivity and potential biases related to this position. A dense description of participants (presented using vignettes in Table 6.2) allows the reader to assess the transferability of results. Exposing a record of research procedures, analysis processes, and logic to an expert colleague strengthened dependability (report

submitted for peer audit available on request). The triangulation of data sources (participants) and the researcher's pursuit of reflexivity undergirded the confirmability of results.

Ethics approval

All necessary ethical permissions were obtained before data collection through the University of the Witwatersrand Human Research Ethics Committee (Medical) (M200235).

6.5.4 Results

Seven (n=7) of the nine participants responded to the online CoP evaluation survey, the aim of which was to describe participants' experience of the benefits of participating in the CoP for supporting their delivery of hand therapy services. A vignette of each participant's experience is presented in Table 6.3. This is followed by an illustration (Figure 6.1) and a description of the three themes generated from analysis. Recommendations for CoP logistics shared by participants are outlined at the end of the section.

Table 6.3: Participant (n=9) vignettes: *Welcome to my corner of the hand therapy world*

Illusionless optimist
Welcome to my corner of the hand therapy world... a district hospital in a deep rural village in the mountains. Beautiful, but very rural! Resiliently optimistic, I embarked on my rural Community Service in a bubble of big dreams. An environment so poorly resourced grounded my excitement: I had no idea how to provide hand therapy. Most of the time hand therapy patients don't recover as service and resource constraints mean that they aren't able to access surgery or rehabilitation. I see 20-30 patients per month who require hand therapy. One of my patients was Uuka. I was able to figure out, through reaching out to experts, that he had a peri-lunate dislocation. But Uuku declined treatment: surgery would have been difficult to access and he was worried about losing his job; he would rather have pain than no movement. Feelings of futility sometimes come with working in a setting like this - even when you know what is wrong and what should be done, patients still aren't able to get the help that they need.
Dedicatedly winging-it
Welcome to my corner of the hand therapy world...I deliver rural clinic-based services. I treat around 30 patients with hand conditions each month. My first few weeks was the most overwhelming thing I've ever experienced: treating serious hand injuries with no undergraduate hands experience, no occupational therapy colleagues, no on-site supervisor, and working out of a residential park-home. How could *I* be expected to treat three-year old Kagabu's burnt hand? This shouldn't be allowed! But I got by. I read and called my supervisor (I probably could have read more). I did enough to get by. At times I dissociated myself from the experience to cope. But it got better. I made splints and pressure garments for Kagabu. I remember a surge of joy as I watched him, hesitatingly at first, but with growing confidence, use his burnt hand to play. He did it! I did it!
Eager and willing
Welcome to my corner of the hand therapy world...a township clinic situated on the outskirts of a large city. A small part of my patient load is patients with hand impairments. Some patients have sustained assault injuries and are referred to me when discharged from the City's hospitals. But most of my patients have chronic conditions that affect their hand function – cerebral palsy, CVAs, congenital conditions. With limited knowledge and experience, and very few resources, it's very difficult to feel like I'm actually able to help patients achieve improved function and participation. I'm eager and willing to do everything that I can but

that often feels like it falls very short of the need. The services aren't terrible, but the system provides only limited resources and offering a quality occupational therapy service feels like what a sunflower might feel growing through mud.
The Bad Grad Welcome to my corner of the hand therapy world... a large urban hospital. I've rotated through different units in the large occupational therapy department treating around 100 hand patients per month when I was on my orthopaedics rotation. I knew nothing leaving uni – I felt like an official 'bad grad' but thankfully I had a supervisor who was a hands expert and was able to teach and guide me. Despite being a better-resourced hospital, we still spent much of our time dealing with late referral tendon injuries and trying to fix the doctors' mistakes caused by a lack of experience, mismanagement and late referral.
Tired and Trying Welcome to my corner of the hand therapy world... a tiny rural hospital, nestled between rondawels [round dwelling with thatched roof], rolling hills and the ocean. Not much around besides goats, cows and a few chickens. I saw about 40 patients with hand injuries each month – close to half of my caseload. Hands has been frustrating – I often had no idea what to do. Yet it was rewarding when I got it right – like with 9-year-old Andiswa who had a severely burnt dominant hand but was able to return to school. Working in an underdeveloped and strained system was hard and I needed a psychologist to make it through the year. That said, I remain hopeful that things will change for healthcare in our country.
Anx-cited outsider Welcome to my corner of the hand therapy world... a rural regional hospital. It's a world so different to the one I know. I'm an anxious outsider: feeling out of place, out of my culture, but eager to learn. I was involved in a weekly hands clinic at the hospital and I saw around 30 hand-injured patients per month. I also did frequent clinic outreach and home visits. Despite a lack of resources and guidance, I learnt a lot and I was able to consolidate my university foundation. Thulani is perhaps my most memorable patient. He was stabbed in the head with a knife by someone trying to steal his beer at a time when COVID-19 restrictions made alcohol scarce.
The Find-a-way OT Welcome to my corner of the hand therapy world... a large rural hospital in a very hot part of the world! I see around 30 hand-injured patients each month. Hand therapy is challenging and my clinical reasoning is being put to work. Patients are deeply grateful for any service that I'm able to offer them. But resources are very limited and the support and supervision that I receive is much less than I need.
Solo worker bee Welcome to my corner of the hand therapy world...I serve urban clinics on the outskirts of a big city. I drive from clinic to clinic, carrying the world (my therapy things) with me. I see about 40 patients with hand conditions each month. Many of them have chronic hand problems like children with cerebral palsy or adults with old radial nerve injuries. But many patients don't have formal diagnoses. *Seeing what I can do with the resources* I have' summarises my experience. I am able to refer patients to a district hospital when I'm really stuck, although often patients aren't able to attend these appointments.
The growing therapist Welcome to my corner of the hand therapy world... deep in a deep rural setting. I work at a district hospital and we service 16 primary health care clinics in the area. About 50% of my caseload is patients with hand injuries – many traumatic. I see a lot of victims of abuse and violent crime. 'Hands' was daunting to start with and I lacked confidence. Although I was the therapist with the least experience in my department, I had the most 'hands' knowledge. But, with time, I became more comfortable with hands and enjoyed treating these patients. Seeing patients being able to return to work after a hand injury was very rewarding.

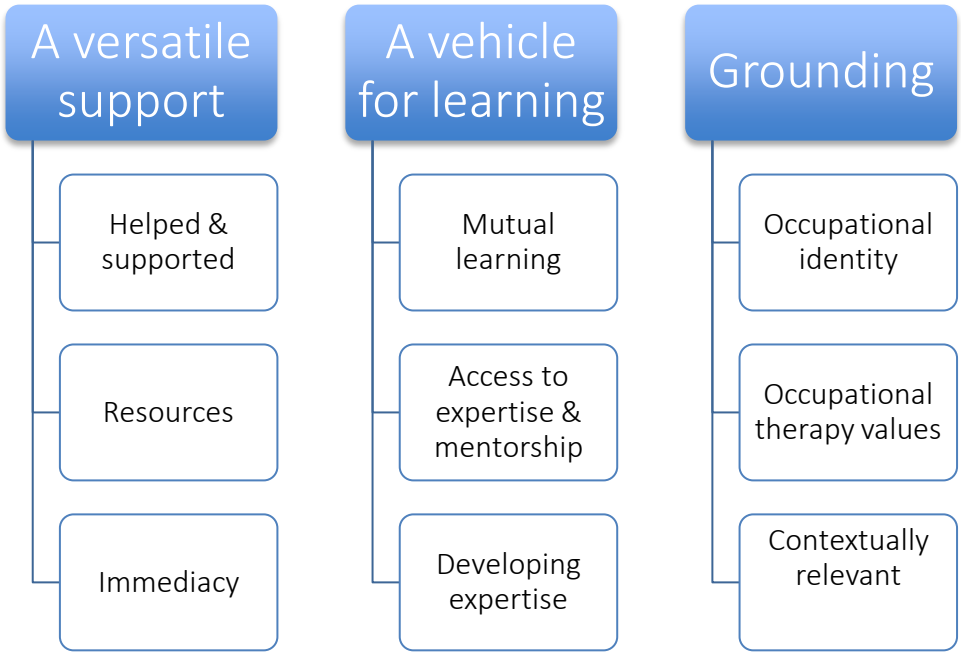

Figure 6.1: Themes and subthemes that captured participants' experience of the benefits of the VCoP

Theme 1: A versatile support

The CoP was a space where participants could receive much-needed support for delivering hand-injury care in underserved settings as novice practitioners.

1.1 Helped and supported

Firstly, the CoP facilitated feelings of being helped and supported. One participant explained,

> *"Everyone was so supportive and willing to listen… to share their experiences which makes sharing yours easier, or just being able to relate … which is "good for the soul" and makes you feel less frustrated and alone in all the struggles. Being able to ask the people for help and knowing somehow we'll figure this out when you have a patient in front of you"* Participant 7

The CoP provided a sense of the community for the loneliness and sense of pressure experienced in a rural setting:

> *"When you're in rural and remote areas you often end up feeling really lonely and there's a lot of pressure. It's not like in the city where if you don't know how to do something you can… send your patient to… see another therapist 10 minutes*

away. You are the only therapist and it's all on you. So having a community of people who can support you and help you is super helpful" Participant 2

One participant echoed the value of a virtual community of others "in the same boat". For another participant, the supportive environment enabled her to share her vulnerability as a novice therapist, referring to the CoP as "a safe space to admit my weaknesses".

It's a great support system to inexperienced OTs in need of assistance ito being clueless with certain cases, support, and "counselling"…a few listening ears which helps knowing you're not alone. The offloading your emotions was so helpful not only for that but also to hear how others coped… knowing it's not just me… coping with commserve and knowing 'I'm not so bad because we're all struggling'. It also gave me hope that it will be alright hearing other people's stories… that support was great, others pulling each other up at different times. Participant 7

1.2 Immediacy

The CoP, with WhatsApp being added as a platform for interactions, was able to meet *the need for immediate guidance and support.* One member identified this as the most helpful aspect of the CoP:

"The WhatsApp group where (the researcher) would answer questions "in real time" (i.e. while you're sitting with your patient in the session)" Participant 2

Another participant reiterated the stress-alleviating effect of having access to immediate support:

"Having the WhatsApp group a phone away is amazing for your stress levels - knowing you can ask for help and there is always a response" Participant 7

1.3 Resources

Additionally, the group provided a space to share resources readily:

"Having a place to access resources…has assisted me in treating hands clients" Participant 4

Group interactions also supported resourcefulness:

"...You learn so many tricks from others, (like) how to use old objects as resources" Participant 7

Theme 2: A vehicle for learning

Participants shared how the CoP provided a rich opportunity to construct learning.

2.1 Mutual learning

Learning was, first of all, characterised as mutual learning. "Sharing" and "comparing" were words used by participants to discuss this reciprocal learning. One participant reflected:

"...It allows you to share your experience and learn from others that are in the same situation" Participant 6

Learning through other participants' clinical questions was another aspect of this mutual learning:

"It was helpful to see others' questions and the answers to them cause often you'd get a similar case and already have knowledge on it because of the group." Participant 6

2.2 Access to expertise and mentorship

Learning in the CoP was supported by being able to access expertise in the group, and the group provided a means to mentorship. Two participants explained these benefits:

"Being given access to people who could actually help me and teach me how to clinically reason through cases felt like winning the lottery in terms of hand therapy" Participant 2

"By having a senior OT as part of the CoP also assists with mentorship when that is not available in your Community Service setting (i.e. you are the only therapist)" Participant 6

2.3 Developing expertise

Through the structure provided by the CoP and the interactions that this facilitated, participants were able to develop expertise in hand therapy. This was facilitated by opportunities to reflect in the group and a 'safe space' to gain knowledge and skills:

> *"It has been a place to reflect and grow as an OT practitioner in terms of Hand Therapy. It has allowed me a safe space to admit my weaknesses and limitations whilst providing an opportunity to gain knowledge and skills by talking to other OTs in the same situation*" Participant 5

A similar benefit was explained by a participant in the context of being responsible for a diverse caseload:

> *"...As a generalist OT there are so many conditions you have to focus on...so there's a one-stop group to give you knowledge so that you don't have to look up all the information by yourself...information you wouldn't necessarily have found in articles..."* Participant 6

The learning space provided by the CoP compelled critical thinking, which contributed to the development of expertise:

> *"It also forces you to think on the spot, even if it's not your patient, which develops your clinical skills for hand therapy"* Participant 6

The CoP also supported the development of clinical reasoning. One participant explained:

> *"Yes, although each hand is different, familiarizing yourself with other hand injuries will always improve your clinical reasoning!" Participant 3*

Including CoP members with more advanced expertise who can guide clinical reasoning was deemed to be important:

> *"…It is so important to find people who can provide you with accurate clinical reasoning when you are unsure of where to go!"* Participant 5

Theme 3. Grounding

In addition to providing support and facilitating learning, feedback suggested that participating in the CoP was professionally and contextually grounding.

3.1 Occupational identity

Firstly, the CoP supported some participants' professional identity as occupational therapists:

> *"It was also striking how it changed the way I look at hand therapy and the role of OT. It made me realize our role better, and have more interest in it than coming in. It made me want to be an OT! Which is really important realization for a Community Service OT*" Participant 7

When asked what advice to give future Community Service occupational therapists for providing hand therapy, retaining this occupational identity was prioritised by one member:

> *"Sometimes when you start seeing hand patients you get really overwhelmed and you feel like you don't know anything but don't forget what you learned at varsity. You do know the basics. You might have to brush up on some of the technical skills and knowledge but don't let that overshadow what you already know about occupations! Don't be afraid to brainstorm and experiment with your patients in terms of finding new ways of doing things but make sure that you're always focusing on the occupation. Don't lose your identity as an OT while you're trying to improve on your biomechanical knowledge and skills*." Participant 2

3.2 Occupational therapy values

The CoP also served to consolidate occupational therapy values for participants. Participants shared that the CoP was helpful:

> "[To] always think back to the patient's goals" Participant 3
>
> "[For] learning to remain client centred" Participant 4
>
> "…To remember the hand belongs to a person and treat the person holistically" Participant 4

3.3 Responsive

The CoP was also contextually grounding in that it responded flexibly to novice practitioners context-specific and emerging needs. These included topics they were struggling with, guidance on when to terminate treatment, and how to deliver hand therapy in a community setting. Highlights for participants were:

> "…Having people come and talk to us about topics we are struggling with" Participant 2

> *"It was great that she covered the basics of neuro … first and then gave a lot of tips, which is so helpful coming from a super experienced OT. Her reassurance on when to discharge patients and how to remove yourself from things you really cannot help with meant so much to me especially because we are inexperienced you don't know when to stop trying to help. It worked well that she gave time for us to ask questions because then she could identify what we really struggle with. (The neuro hand) was also one of the sessions (that) we asked for specifically which I think is important for the hands CoP - identifying (what) the members needs are and then responding to that, as was done. So it's not just another lecture or course but it is specific."* Participant 6

> *"…To (learn) about hand therapy and how to integrate it into the community setting"* Participant 4

Recommendations for future VCoP

When asked if they would recommend a CoP as a vehicle for learning for Community Service occupational therapists, the affirmative response was unanimous:

> *"Definitely!!! ... You really come in knowing (nothing)... I felt guilty about how little I knew and how bad my therapy was... so being in a group with other people who are in the same boat as me was so helpful... It was such an amazing experience. In writing the handover for the new Community Service occupational therapist coming to our hospital, I've been recommending all the courses that I went on this year that I found helpful and it's a little bit sad that I can't recommend this one because it definitely was the most helpful and provided the most support"*
>
> Participant 2

Participants also provided some helpful feedback around future VCoP logistics. Participants frequently had difficulty accessing the MS Teams platform and recommended that a more accessible platform (*Zoom* or *WhatsApp*) be used for the CoP. They recommended that a CoP have between 5-10 members and meet every 1-2 weeks for a formal 60-90 minute meeting.

6.5.5 Discussion

This paper describes novice occupational therapists' experience of the benefits of a VCoP to support hand therapy practice while completing a mandatory service year in rural or underserved clinical settings in South Africa. Three themes were generated from the analysis, demonstrating that the VCoP was a *versatile support*; *a vehicle for learning*, and both professionally and contextually *grounding*. Although VCoPs are not the only form or format for facilitating social learning and support, findings found strong agreement with existing literature on the benefits of VCoPs. This, along with the recommendations that participants provided for future VCoPs, is discussed in this section.

A versatile support

A key benefit of the VCoP in this study was the experience of support. This clear finding is less overtly expressed in previous occupational therapy CoP literature. The participant vignettes reference the complex and resource-constrained settings in which participants worked, contributing to their need for support. The need for support for many of the participants was likely linked to their professional isolation, with many of them working as a sole occupational therapist or in a team with limited hand therapy expertise. Isolation, both social and professional, is a common challenge experienced by health professionals, and it can be powerfully mitigated by VCoPs[253].

Quotes from participant experiences suggest that the need for knowledge and support are closely connected. The expanse of social support literature demonstrates the evolution and complexity of the concept. However, early conceptualisations of types of support identify emotional support (that fosters feelings of comfort), cognitive support (that assists understanding through information, knowledge or advice) and material support (that contributes practical goods or services to help solve problems)[146]. Delineating these aspects of support highlights the overlap between participants' learning needs and support needs,

suggesting that the tacit need for support is facilitated during the learning process. The literature also identifies the significance of the timing of support, which was a significant factor for participants in this study who often required immediate support. It is timely access to knowledge and expertise that sets VCoPs apart from other models of knowledge delivery[254].

A vehicle for learning

Learning is central to the purpose of CoPs, and thus, it is not surprising that learning was integral to participants' experience. Contemporary CoP theory and seminal social learning theory proposed by Vygotsky highlight the importance of communities to effective learning[255,256]. There is growing evidence within the occupational therapy literature supporting the use of CoPs for learning, with a 2017 literature review reporting the emerging use of CoPs within occupational therapy[116]. The available articles (n=5) showed evidence that CoPs facilitated knowledge sharing, knowledge translation, learning through boundary crossing, and reflection. This early evidence highlighted the potential of CoPs for the continuous professional development of occupational therapists[116]. More recent work with occupational therapists working in an acute paediatric setting in Brazil has added weight to this recommendation: participation of nine occupational therapists in a CoP demonstrated how it utilised dialogue and collaborative reflection for knowledge development and generated practical knowledge for acute paediatric practice within the group[257]. The latter findings also echo the sub-themes in this study that speak to a CoP as a means of accessing resources and providing opportunities to apply knowledge to one's practice context.

The shared or mutual nature constituted an explicit feature of participants' knowledge acquisition in this study. This co-learning process is a hallmark of CoPs[253], and engaging in 'thinking together' is argued to be at the heart of COPs[258]. Participants in this study highly valued engaging with colleagues with hand therapy expertise. Barry and colleagues' review of CoPs for facilitating occupational therapists continuous professional development did not overtly mention the importance of having experts or specialists within the group but highlighted the value of diversity in the group[116]. Similarly, the explicit inclusion of 'experts or specialists' within the group is not highlighted by CoP theorists[146], perhaps because the theoretical positioning of CoPs privileges the expertise of all and the co-construction of knowledge and meaning.

Grounding

The affirming impact of the CoP on occupational therapy values and identity reported in the third theme of the current study was an unanticipated finding for the first author, who had engaged with participants for a prolonged period. Though unexpected, this finding should not be surprising. Communities of practice are considered a platform for the social theory of learning[255] in which learning constitutes an individual's social formation and thus results in identity change[258]. Wenger-Trayner explains the link between learning and identity formation: CoP theory views learning and the "becoming of the learner"[256(p.145)] as aspects of the same process[256(p.145)]. Instead of acquiring knowledge and skills alone, the theory places the negotiation of meaning at the centre of learning. Because negotiating meaning involves "becoming a certain person in a certain social context"[256(p.145)], identity formation becomes part of learning. Occupational therapists' professional identity continues to be an issue raised in international[259] and South African[163] literature, so this finding is particularly important. Turner and Knight's review of occupational therapists' professional identity presents reasons for and consequences of the profession's struggle with identity. They identify a poor grounding in the paradigm of occupation as being primarily responsible for occupational therapy's difficulty in establishing its identity. Interestingly, these researchers identify CoPs as the vehicle through which occupation-based practice and the profession's identity can be reinforced[260]. Findings from the study of the aforementioned Brazilian paediatric occupational therapists CoP validate this conclusion. They found that the CoP produced professional practice knowledge through dialogue and reflection, provided a sense of belonging, and affirmed participants' professional identity[261].

Evidence for using CoPs and VCoPs in occupational therapy is slowly increasing while research around their use within other health settings is substantial[254]. Project ECHO is one example of a VCoP model used to improve healthcare outcomes, initially designed to address service disparities in rural and remote areas[262]. The model seeks to make expert knowledge accessible at the right place at the right time. ECHO participants join a VCoP where the group shares guidance, feedback, and support. During ECHO sessions, group members present clinical cases to one another (including a specialist within the group) for discussion. A non-hierarchical 'all teach, all learn' philosophy facilitates reciprocal learning where best practice is applied to participants' local contexts[262].

Innovation: an unexpected by-product

Innovation is also a common by-product of the knowledge construction that happens in CoPs[250]. Innovation was not reflected in the data analysed for this study, but the group developed a practice innovation shortly after data collection was completed. During the study, participants identified the need for appropriate hand therapy resources and equipment that was portable and could be used for the assessment and treatment of a diverse caseload. In early 2022, shortly after the completion of the study, participants and the first author developed a practice innovation, *Hand Therapy On The Move (HT-OTM).* HT-OTM is a fully equipped hand therapy station carried as a back or pulled on wheels. The innovation was piloted in two rural locations in South Africa and has been received with great interest at local and international conferences[263]. The opportunity to enable access to the therapy resource through public health tender processes in South Africa and share the innovation with international colleagues for replication in their settings is being explored. This is an example of simple ways that CoPs can contribute to progress in a field of practice[250].

Recommendations for future use of VCoPs

Participant feedback is recommended to be used to refine the VCoP model used in this study and upscale it for implementation amongst rehabilitation personnel in South Africa. Participants provided recommendations around the optimal VCoP size, the frequency and duration of scheduled meetings, and preferred electronic platforms. It is necessary to make sure that VCoPs' success depends on basic resources: protected time to participate, electricity and adequate internet bandwidth[254], and an electronic device for each member. Participants in this study, particularly those in more rural settings, sometimes experienced connectivity difficulties affecting their meeting participation. Scheduled load shedding and unforeseen changes to these schedules in South Africa mean that participant access to online platforms can easily be disrupted. VCoP members will need to factor these variables into group planning and logistics to mitigate the impact of these disruptions.

A strong sense of participant satisfaction with the VCoP in this study motivated the separate analysis of the evaluation survey and this paper. Key components of the VCoP that contributed to expressed satisfaction were access to real-time support facilitated by the use of *WhatsApp*, access to expertise in the group, and the flexible format that allowed learning to address emerging needs. Satisfaction with the VCoP was largely a supplementary finding in

this study but is a construct that should be overtly considered in VCoP design. Higher levels of user satisfaction when collaborative learning enables participants to learn about patient diagnosis and treatment, when participants develop trusted networks, and when the mutual learning process strengthens members' share capital'[253]. The perceived effectiveness, efficiency, and knowledge acquisition that a virtual platform enables have also been identified as variables significantly associated with member satisfaction that should be considered in VCoP planning and implementation[253].

Closely linked to the importance of user satisfaction is the importance of evaluating the outcomes of CoPs. This study evaluated participants' experience of a VCoP while delivering hand therapy as a novice generalist practitioner, which was suited to the study's purpose and aims. What was not considered, however, was the VCoP's impact on the hand therapy services participants delivered. This may be considered a limitation, but it represents an essential opportunity for future research.

A lack of rigour in published methods of evaluating the impact of CoPs on public health practice[254] was reported in a 2017 systematic review. The review of the evidence concluded that CoPs that facilitate reflective practice, diverse networking, and structured problem-solving may provide effective support for public health professionals. However, further work was recommended to establish rigorous methods to evaluate the impact of CoPs on the health of populations[254]. A recent publication[264] demonstrates how this gap can be addressed: ECHO Ontario, a Mental Health programme, has proposed an implementation framework for VCoPs which combines Proctor's implementation outcomes[265] with ECHO project expertise. The Framework considers eight implementation outcomes, along with respective success thresholds, for the evaluation of acceptability, adoption, appropriateness, cost, feasibility, fidelity, penetration and sustainability[264].

Strengths and limitations

A number of strengths and limitations to this study are acknowledged. To our knowledge, this is the first South African study to report on the use of VCoPs for strengthening the capacity of rehabilitation personnel. The questionnaires included in the evaluation were developed towards the end of the broader study's data collection period and were informed by the researcher's active participation with VCoP members. They were also partly focused on the

main research purpose rather than specifically targeting an evaluation of the CoP and its benefits. This may have contributed to assumptions that limited the objectivity of questions. However, from the researcher's constructivist perspective and the reflexive thematic analysis approach taken, responsively developing questions based on prolonged engagement with participants may also be considered a potential strength. While considering both perspectives, future CoP evaluation strategies should be evidence-informed and broadly planned prior to the commencement of the group. In addition, the questionnaire did not undergo expert review, which would have strengthened its content validity and should be ensured in future research. Finally, two participants chose not to participate in the evaluation. It is possible that these participants' experience of the group was less optimistic, reducing the range of experiences included in the data. Building opportunities to complete evaluations into scheduled group sessions may mitigate this challenge in the future. It is also acknowledged that gathering data through open-ended survey questions potentially restricted the depth of qualitative data captured in this study.

6.5.6 Conclusion

"To achieve healthy lives and wellbeing for all, the right knowledge must get to the right place at the right time for those who need it most"[254(p.634)]. Results from this study contribute to a growing body of evidence supporting the use of VCoPs to achieve this imperative. This study also demonstrates how a VCoP can simultaneously be used as a collaborative data collection tool while addressing the needs of participants for support, learning and grounding within their professional identities and practice contexts. As demonstrated in this study, CoPs can also act as hubs for contextually responsive innovation. Upscaling the implementation of VCoPs to support the practice of rehabilitation personnel working in rural and underserved contexts is recommended as they extend access to services to populations that need them the most.

CHAPTER SEVEN: Practice Innovation (Study 2A)

7.1 Manuscript Details

Chapter 7 presents a practice innovation developed by the participants of Study 2A and the PhD researcher as a manuscript prepared for submission to the Journal Of Hand Therapy's Practice Forum. This section of the Journal publishes relevant clinical innovations and ideas. Personal communication with the section Editor confirmed the appropriateness of the practice innovation and welcomed the manuscript's future submission. The practice innovation was presented at the 2022 Triennial IFSSH-IFSSH-FESSH Congress[263] and the South African Rural Heath Conference in 2022 (p.iii). The practice innovation was well received at these meetings, motivating the authors to share the idea with a broader audience through the Journal of Hand Therapy. The manuscript has been formatted according to the Journal's specifications for their Practice Forum (according to prescribed headings, use of references, and 750 word limit). Details of the manuscript are listed below:

Title of the publication: *Hand Therapy-on-the-Move*: a practice innovation to take therapy to harder-to-reach communities

Authors: Button A[1], van Stormbroek K[1], Westig MJ[1], Joubert JP[1], Holman L[1], Joubert C[1], Visser J[1], de Kock Z[1], Folly A[1], Palmer D[1].

[1]Department of Occupational Therapy, School of Therapeutic Sciences, University of the Witwatersrand, Johannesburg, South Africa

Target Journal: Journal of Hand Therapy: Practice Forum
DHET accredited
Impact Factor: 1.908

7.2 Details of author contributions

The contributions made by each author are tabulated below using The Contributor Roles Taxonomy (CRediT)[156]. Details of the taxonomy can be viewed in Appendix D.

Table 7.1: Contributions made by each author – Manuscript 5

	Button	Van Stormbroek	Westig	Joubert J	Holman	Joubert C	Visser	De Kock	Palmer	Folly
Conceptualisation										
Resources										
Manuscript writing draft										
Manuscript writing review and editing										

7.3 Manuscript: *Hand Therapy-on-the-Move*: a practice innovation for taking therapy to harder-to-reach communities

7.3.1 Introduction

Basic hand therapy is crucial in low to middle-income countries (LMICs). Hand injuries are common in LMICs and are commonly caused by work-related accidents, interpersonal violence, home accidents and falls, road accidents, and burns[28,266] Young males carry the highest proportion of hand injuries[28,29,266]. These individuals typically have low-income levels, work as semi- or unskilled labourers, and are breadwinners in families. Hand injuries can threaten job security, livelihood and role fulfilment, making adequate hand therapy essential.

In South Africa, hand therapy in rural and underserved contexts is typically borne by novice generalist occupational therapists working in the public health sector[11]. Although practice settings vary, these therapists typically work with limited support and supervision and few resources[11]. The authors of this paper spent the first year of practice after graduating in rural or underserved contexts in rural (n=6) and peri-urban settings (n=4). Despite providing services across areas of occupational therapy practice, a substantial proportion of their caseload was hand therapy. Common practice challenges included high caseloads, complex hand injuries, inadequate physical resources, lack of space, lack of access to water and electricity, and the need to provide hand therapy services at multiple (often remote) clinics or in patients' homes. The photographs below illustrate some of these practice features (Illustration 7.1).

Illustration 7.1: From top left to bottom right: Travelling on a dirt road to a remote clinic; difficulty getting a paediatric wheelchair through the front door on a home visit; a client who sustained a stab wound; a primary healthcare clinic at which occupational therapy services are delivered; typical the equipment available for delivering basic hand therapy services.

In response to these challenges, a growing appreciation for the necessity of basic hand therapy in these settings, and the call for universal access to hand therapy, this project set out to design a portable hand therapy kit for practice in rural and underserved areas both in South Africa and similar contexts. The practice innovation sought to be responsive to local evidence and the practice realities described above. The prototype was designed, produced, and then piloted by two occupational therapists working in rural settings in South Africa. Their feedback was incorporated into the refined design.

7.3.2 Materials

A list of specifications (see Table 7.2) for the portable hand therapy station design and contents was compiled from a review of local evidence and the groups' personal practice experiences. Several design options were explored (see Figure 7.1).

Table 7.2: Hand therapy station specifications

Key specifications for kit design and contents
• Include appropriate tools for evaluation[267] patient-rated[268] and client-centred[269] assessment; measure both body function and structure as well as activity and participation[270]
• Include resources for a diverse caseload (not hand therapy alone)[11]
• Include resources to support communication with clients where communication barriers exist[12,139]
• Include a resource on evidence-based strategies to support client adherence Include a resource on evidence-based strategies to support client adherence[269]
• Include assessment and treatment tools that enable an occupation-based approach[12,271]
• Contain resources suited to commonly occurring conditions (e.g. flexor tendon injuries) and commonly required treatment modalities, e.g. splinting[11]. Resources should be suitable for more

than one purpose e.g. retractable tape-measure for oedema measurement and seating/wheelchair assessment that is appealing to children and can be used as a toy.
- Lightweight, durable and cleanable
- Portable (on wheels / carried on back) and allow primary care visits and home visits[12].
- Provide a surface/table on which to work
- Organized and provide resources for quick and effective assessment and treatment[12]
- Consider typical roles and occupations when selecting resources to include in station eg. many patients are domestic workers or manual labourers; typical IADLs include collecting water and firewood[272], sweeping and gardening
- Include basic splinting materials (eg. thermoplastic) and resources while considering low-cost alternatives
- Include storage for splinting material sheets/rolls
- Include water bottles for visits where there is no running water (water bottles can also be used as low-cost weights in strengthening preparatory activities)
- Include a pot that can heat water on a fire/burner where there is no electricity (pot can also be used for making 'pap' [maize porridge] in activity-based treatment
- Illustrated, printed home programs in client- home languages (printing facilities rarely available and electronic sharing of home programs not feasible with many clients)
- Include treatment guidelines / treatment principle-focussed protocols for common conditions to support therapists' clinical reasoning and that can be adapted for atypical client presentations

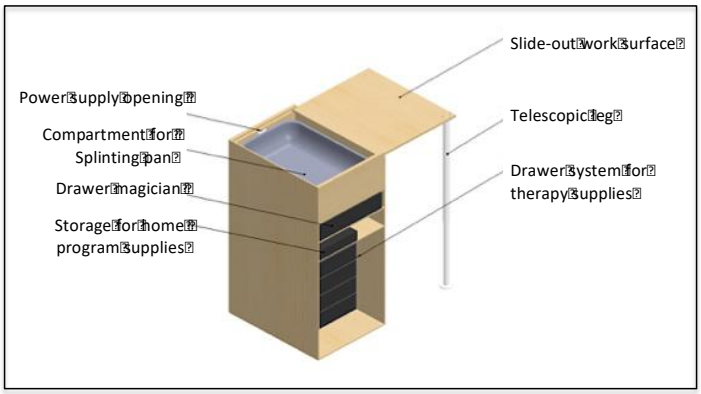

Figure 7.1: One of the early design options with a slide-open work surface supported by telescopic leg

The final prototype (Illustration 7.2) consisted of a three-drawer plastic storage unit in a canvas, plastic-lined backpack. The backpack straps were padded with foam, and a zip opened a flap-back cover (see Illustration 7.4 for pattern) to allow full access to the drawers and the splinting pan on top of the station. The hand therapy station could be moved on wheels or carried as a backpack. A large pocket on the side of the station accommodated thermoplastic sheets and a fold-up plastic table.

Illustration 7.2: From left to right: The *Hand-Therapy-on-the-Move* backpack showing padded straps; the backpack opened showing the three-drawer system with splinting pan on top; a therapist in rural KwaZulu Natal Provence wheeling the kit to a clinic; a therapist in the hills of the Eastern Cape carrying the backpack over terrain too rugged for the wheel system.

The top drawers contained resources for orthosis fabrication and acute hand rehabilitation (see Illustration 7.3). The middle drawer contained resources for preparatory activities, including homemade therapeutic putty, pegs, and resistant bands. The bottom drawer contained resources for occupation-based therapy, including a sewing kit, small gardening tools, hammers, screwdrivers, and items for relevant ADL/IADL and leisure activities. The total cost of the station was 4400 ZAR (approximately 280 USD). A video introduction to *Hand-Therapy-on-the-Move* is available here with guidelines for making your portable hand therapy station.

Illustration 7.3: Top drawer of station with Velcro, scissors, and mini-heatgun

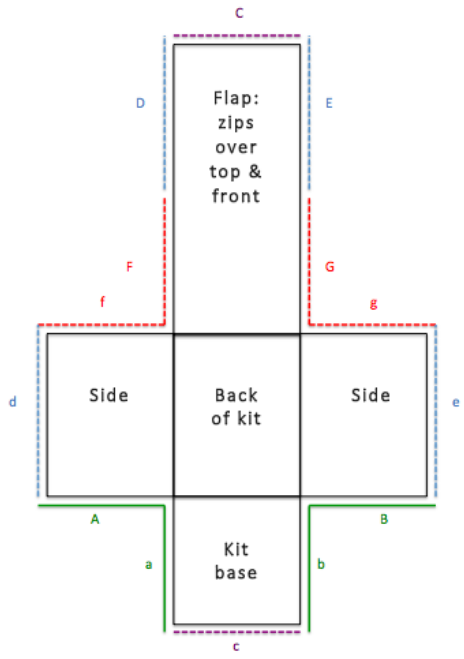

Illustration 7.4: Pattern for fabric cover: dotted lines show position of a zip and solid lines show areas that are sewn e.g. 'A' sewed to 'a' and 'F' zips to 'f'

7.3.3 Conclusion

The *Hand-Therapy-on-the-Move* station is a simple portable hand therapy station that aims to support occupational therapists in South Africa and other LMICs in providing crucial hand therapy services to patients who rely on their hands for their livelihood. The practice innovation addresses some of the challenges therapists in these countries face in implementing occupation-based hand therapy[5]. The prototype can be easily replicated and customized by therapists using available materials and adapting the contents to suit the needs of different client groups. The cost of the kit may be reduced by producing many units (decreasing the unit cost) or using cheaper materials (e.g. an appropriate paper-based technology (APT) drawer system). Using renewable materials and up-cycling hand therapy supplies will contribute to sustainability.

CHAPTER EIGHT: Independent Practitioners' Support and Development Needs (Study 2B)

8.1 Manuscript details

Chapter eight is presented as a manuscript submitted to *Occupational Therapy International* in July 2023 and is currently under review. The manuscript reports on the experience of delivering hand-injury care of six generalist occupational therapists registered as independent practitioners in South Africa. The findings of this study (Study 2B) reflect the experiences of the second group of generalist therapists used instrumentally to understand their support and development needs and propose strategies to address these needs.

8.2 Details of author contributions

Title of the publication: 'A Different Ball Game': Responsive Capacity Strengthening for Hand Rehabilitation in Resource-constrained Contexts

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Journal: *Occupational Therapy International*

DHET accredited

Impact Factor: 1.5

8.3 Details of author contributions

The contributions made by each author are tabulated below using The Contributor Roles Taxonomy (CRediT)[156]. A description of these roles can be found in Appendix D.

Table 8.1: Contributions made by each author – Manuscript 6

	Van Stormbroek	O'Brien	Van der Merwe	Myezwa
Conceptualisation				
Method				
Resources				
Manuscript writing draft				
Manuscript writing review and editing				
Supervision				

8.4 Manuscript: 'A different ball game': responsive capacity strengthening for hand rehabilitation in resource-constrained contexts

8.4.1 Abstract

The lack of specialist hand therapists in many countries, including South Africa, necessitates that generalist occupational therapists provide hand rehabilitation. Little is known about the unique support and development needs that these therapists have managing diverse caseloads in complex practice settings. This study aimed to describe the experiences of generalist occupational therapists who deliver hand rehabilitation in the South African public health sector in order to identify their support and development needs and propose interventions to address these.

A qualitative descriptive instrumental case study design was employed. Six occupational therapists delivering hand therapy in a generalist capacity were purposively sampled. Data were collected using field visits, in-depth interviews and field notes. Transcribed interview transcripts and field notes were analysed using reflexive thematic analysis. Within- and across-case analysis was undertaken. Trustworthiness was established through several strategies, including reflexive writing, triangulation, member checking and dense description.

Within-case analysis findings for each participant are presented using vignettes. Cross-case analysis generated five themes: *Stressful and satisfying* captured an experience that was both challenging and rewarding. *Learning journey* communicates participants' experiences of their undergraduate preparation, their transition to practice and their process of continuous learning. Enabling factors that supported participants in responding to the demand for hand therapy is articulated in the third theme, *rising to the challenge*. The complex and transient nature of the systems and services where participants functioned is explained in *traversing system and service change. Once upon a hand injury*, the final theme illustrates the lived realities of patients and the complexities that therapists are required to respond to in delivering care.

Generalist occupational therapists are integral to extending access to hand therapy in South Africa. Considerations for capacity strengthening of these therapists included Individual-level

strategies, team and human resource strategies, education, physical resources, and system and service-level strategies.

8.4.2 Introduction

The global need for rehabilitation far exceeds the availability of this essential service[57]. Although data is limited, the unmet need for rehabilitation is particularly marked in low-to-middle-income countries (LMICs)[273]. With increased non-communicable diseases and other health demographic trends, the need for rehabilitation is increasing, necessitating concerted and strategic action[273]. Despite this need, the public health sector in South Africa continues to struggle to provide equitable, quality rehabilitation services[163]. Access to healthcare is uneven across South Africa, with most healthcare resources servicing a minority of citizens [43]. This pattern appears to be the same for hand injuries healthcare: expertise is concentrated in the country's private sector and urban provinces[46], and most hand conditions are treated by health professionals who are not sufficiently trained in hand-injury management, including hand rehabilitation[9].

The burden of hand injuries in the country's public sector is substantial, making the skewing of services away from this a cause for concern. Interpersonal violence, workplace injuries and road accidents[32,33,249] contribute to the substantial burden of hand injuries despite prevalence data being unavailable. Sufficient data exists for hand injuries to be considered a public health priority[20,21,25,26]. The hand has aptly been described as 'the earning tool'[18], and injury that prohibits effective engagement in subsistence occupations may devastate individuals, families and communities, increasing the burden on state health care and social security.

The turnover of rehabilitation staff in the public sector is high, with therapists moving into the private sector after obtaining a few years of experience[47]. This is likely the same for hand rehabilitation, as most therapists with more than five years of experience work within the private health sector[48]. Not retaining expertise in public rehabilitation departments has detrimental and retarding effects on service delivery[47].

The role of the expert 'specialist' therapist in delivering hand rehabilitation services is important. Retaining therapists with expertise or advanced clinical competencies is essential to the quality and sustainability of rehabilitation services[195]. However, even within high-

income countries, specialist therapists cannot meet the national need for hand rehabilitation. Access to specialist hand therapy services in the United States is restricted to better-resourced areas[54]. Finite specialist hand rehabilitation resources necessitate that we consider the generalist therapist's role in providing basic hand rehabilitation services.

Despite hand rehabilitation frequently being considered a specialist area of practice[50], the responsibility for this service in the South African public health service frequently falls to generalist occupational therapists. These therapists must treat a broad, generalist caseload and may not have advanced competencies in hand rehabilitation. We know from a cross-sectional study in 2012 that a novice group of these therapists completing their Community Service (a compulsory year of public health service completed directly after graduation) find this responsibility challenging as they work in rural and underserved contexts with little supervision, support and resources[67]. It is not known whether this experience is similar for fully registered occupational therapists who deliver hand therapy in a generalist capacity. It is anticipated that their experience may be less challenging, given that they have more experience and potentially work in better-resourced settings. In addition, no literature describes generalist therapists' experience comprehensively enough to identify their support and development needs for delivering hand rehabilitation in a Global South context.

If generalist occupational therapists are essential to delivering hand rehabilitation services in South Africa, then their capacity needs to be enabled for this task. This study aimed to describe the experiences of generalist occupational therapists delivering hand rehabilitation to understand their support and development needs for delivering this service and propose interventions to address these.

8.4.3 Materials and Methods

A qualitative descriptive, instrumental, multiple case study[151] design was selected. An instrumental design was selected as it enabled generalist occupational therapists' support and development needs to be extrapolated from a study of participants' experience of delivering hand-injury care. The research population consisted of occupational therapists working in the public sector who routinely treat patients with/at risk of hand injuries/conditions in a generalist capacity. Within the study, a generalist was defined as an occupational therapist who does not have a postgraduate ('specialist') qualification in hand

therapy and is required to routinely treat patients within other areas of practice (e.g. psychiatry, neurology, paediatrics). Two distinct groups within this population are Community Service (CS) occupational therapists and independent practitioners who have completed their CS and choose to work in the public service as fully registered practitioners. The latter group was the focus of this study.

Case selection occurred through a nominated sample. Professional organisations (The South African Society of Hand Therapists and Rural Rehabilitation South Africa), regional hand rehabilitation interest groups and local hand rehabilitation experts were asked to recommend information-rich sources. Given the diversity of healthcare settings in South Africa, an attempt was made to achieve maximum variation within the sample to allow for contrast between cases in terms of province, setting (rural/urban), level of healthcare, therapist experience and therapist home language. Within the resource limitations of the project, recruitment was limited to six cases. Data collection took place between June 2021 and May 2022. Field visits were undertaken field notes were made, in-depth individual interviews were conducted. The latter were audio-recorded, transcribed, and uploaded with field notes to NVivo12 for analysis.

Due to the multiple case study design, the within-case analysis produced a rich description of each case and its setting[274]. Vignettes were constructed to convey within-case findings for each case. Coding lists and hierarchy charts generated in NVivo 12 for each case were used to check that the content of the vignettes accurately reflected salient aspects of each case. The pseudonyms given to each participant captured a key characteristic of each case. Each participant reviewed their pseudonym and vignette to evaluate its accuracy in capturing their experience within their context.

Braun and Clarke's (2021) reflexive thematic analysis (RTA)[251] was used for a qualitative cross-case analysis[24]. The first step of the iterative process (*Familiarization with data*) was applied by reading the transcripts and fieldnotes, listening to the audio recordings, and making notes. *Generating codes* (step 2) was done inductively in NVivo 12, and the final list of codes was applied to the data. *Constructing themes* (step 3) involved searching for patterns in the data and grouping codes according to these patterns. *Reviewing themes (step 4)* involved presenting the preliminary themes to the co-authors. The naming of a number of the sub-

themes required reworking to reflect the content and message accurately. The re-worked themes were then presented to participants in online member-checking meetings. The initial interview with the rural participant was interrupted by poor internet connectivity. A recording of the preliminary results was thus produced for this participant. *Defining and naming themes (step 5)* was done using participants' feedback (see Supplementary File I), after which *writing the report* (step 6) was completed.

As an instrumental case study, participants' experiences were studied to gain insight into and propose interventions to address participants' support and development needs and render effective hand rehabilitation. These were systematically extrapolated from the findings: the first author systematically reviewed (read and made notes for) each theme and sub-theme and the experiences, needs and demands described in each; a list of recommendations or strategies to respond to these experiences was conceptualised and drafted; the list was reviewed, and similar interventions were grouped into five categories (see Table 8.9). Recommendations within each category were presented to each participant in online member-checking meetings. Participants provided verbal feedback and captured their ideas in a member-checking *Excel* document. Revisions to recommendations were included in the reporting of these.

Trustworthiness was pursued through several strategies, including tracing the first author's subjectivity as the primary researcher. Reflexive thematic analysis, as a version of thematic analysis, is considered an interpretative activity that harnesses researcher subjectivity to co-construct data and results with participants[143]. Reflexive thematic analysis acknowledges the lenses created by the researcher's positionality: philosophical, historical, social, cultural, personal and religious, which sharpens or diminishes the focus on the experiences shared by participants[251]. This subjectivity needs to be traced to enable its influence to be discerned by both the researcher and the reader. A positionality statement has thus been included (see Appendix F).

In addition to pursuing reflexivity, several other trustworthiness strategies were employed. Triangulation of data sources (participants), observation during field visits, fieldnotes, interviews) Moreover, member checking strengthened the credibility[234] of findings. Transferability[234] was pursued through a nominated sample and a dense description of

participants (contained in the demographic information and vignettes) was provided, but it had to be limited to protect participant anonymity. A comparison of the sample to demographic data of South African occupational therapists was pursued through maximum variation in case selection. The first author maintained a dense description of research procedures, analysis process and logic, which was exposed to the scrutiny of the co-authors. This accountability strengthened the dependability [234] of findings. Reflexive reading and writing and triangulation were used to establish the confirmability[234] of findings.

8.4.4 Results

In this section, the features of the cases are described. A presentation of the themes generated from cross-case analysis, interspersed by participant vignettes constructed from within-in-case analysis, is presented. The list of support and development strategies generated from themes is presented at the end of the section.

Features of selected cases

The attempt to achieve maximum variation across cases was challenged by COVID-19 restrictions that impacted ethical clearance processes. In addition, some nominated therapists appeared hesitant, with initial interest waning when data collection commenced. This meant that cases were selected from just four of the nine South African Provinces, with half residing in the Western Cape Province. The cases consisted of five female and one male participant. As demonstrated in Table 8.2, four therapists had less than five years' experience and did not have postgraduate qualifications. Two therapists had more than ten years of experience, and both had obtained postgraduate qualifications, though not within hand rehabilitation. A reasonable spread across levels of health facility was achieved, but most cases (n=5) were in urban settings. To enable anonymity, participants' gender and their vignettes have been disassociated from the demographic data.

Table 8.2: Demographic features of selected cases

Years working as OT	Postgraduate qualification	Level of health facility	Setting	Province
1-5	No	Regional	Urban	Mpumalanga
>15	Yes (not hands)	Primary	Urban	Western Cape
10-15	Yes (not hands)	District	Urban	Western Cape
1-5	No	Regional	Urban	Western Cape
1-5	No	Tertiary	Urban	Northern Cape
1-5	No	District	Rural	Eastern Cape

Themes and vignettes

Five themes and several sub-themes were generated from thematic cross-case analysis (See Figure 8.1). Each of these themes is described below. The six vignettes have been interspersed between the themes.

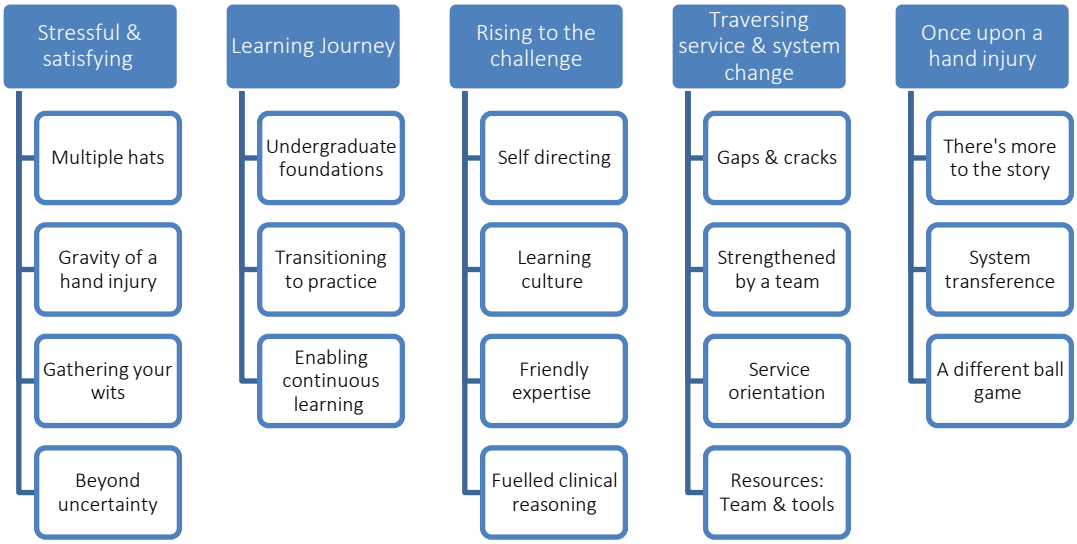

Figure 8.1:Themes and sub-themes generated from analysis

Table 8.3: Vignette 1 *Just Beyond a Just-right Challenge*

A breath-taking backdrop of mountains runs parallel to her drive to work. You might mistake her well-run hospital for a private facility when you see the well-maintained buildings, the not-too-crowded waiting areas, the cleanliness and the coffee machine. She's part of a supportive team of three therapists (one full-time, two part-time). They work closely with orthopaedic surgeons and Aunty Evelyn, their seamstress, makes their pressure garments. She's able to order almost all the therapy materials that she needs - she just wishes they could use some of the budget to get a locum to help see patients on hand clinic days. But beyond the natural beauty, poverty, low levels of education and unemployment characterise the lives of many of her patients. Interpersonal violence is probably to blame for the majority of hand injuries. She's come a long way in just three-and-a-half years: from the sterling 10% that she achieved for her undergraduate hands exam and her lecturer jokingly telling her, "You should NEVER go into hands". She studied hard, but she just didn't get it… perhaps one can't 'get it' while concentrating on things like the right place to stick Velcro rather than sitting opposite a real person with a real hand injury. To figure out where she wanted to be in occupational therapy, and perhaps to prove her lecturer wrong, she's been intentional about understanding hands. She created a hands "to-learn list" and sought out learning opportunities: watching surgeries, requesting clinical exposure to hands, joining a pilot mentorship program, doing as many courses as she could and reflecting on her practice. Colleagues with expertise who were happy to teach her have enabled her learning. A caseload largely limited to hands and neurology as allowed her to focus her learning on hand rehabilitation. But there aren't enough clinic therapists: She's supposed to be seeing patients with acute or sub-acute hand injuries. The rest of rehabilitation should happen at a primary level but the clinic therapists are also overwhelmed. Her supervisor reprimands her for taking too long with her patients but her capacity has grown and she's learning to prioritise. She, however, remains torn between doing a sustainable minimum within her setting, and aiming for full functionality with each patient. How does one do less when patient needs their hand to live? She likes hands very much but working as a generalist in this setting, it's *Just Beyond a Just-right Challenge*.

Theme 1: Stressful and satisfying

Vignette 1, *Just Beyond a Just-right Challenge* (see Table 8.3), describes one participant's journey that speaks to the collective experience captured in Theme 1: delivering hand rehabilitation as a generalist is stressful and *satisfying*. These contrasting experiences, not mutually exclusive, are expressed in four subthemes:

1.1 Multiple hats

This sub-theme captures a key challenge of being a generalist: *doing everything* and being *equipped for everything.* One participant explained:

> *" It's challenging...you're needing to do everything and be decent at everything, it becomes very overwhelming"*
>
> Sassy for the Sake of the Service

Doing everything, or being required to wear "multiple hats at the same time", describes the challenge of managing a diverse workload across multiple areas of occupational therapy practice. This necessitated making radical mind-shifts between patients. One participant expressed her fear about working as a generalist in her setting:

> *"If I do this for another two months I'm going to burn out"*
>
> Just Beyond a Just-right Challenge

Attending to all clinical demands required organisational strategies. The flip side, however, was that a generalist caseload was believed to enable therapists to retain a holistic focus and help them to treat patients comprehensively.

Being *equipped for everything,* or a "jack of all trades", captures the challenge of continuous professional development (CPD) across areas of practice. This demands that therapists prioritise areas of practice and also spread their resources (time, leave, finances) for CPD activities.

1.2 Gravity of a hand injury

A realisation of the seriousness or *gravity of a hand injury* contributed to stress and a sense of responsibility, but also satisfaction:

> *"I enjoy seeing hands patients and seeing their hands fixed, because it is their livelihood for most of the patients...they need their hands to go back into forests and mines...and work. So you are basically giving them their livelihood back if you can fix their hands"*
>
> *Capable, Calm and Called*

Complex injuries were common, and therapists were cognisant of the impact of these on patients' function, as well as constraints on them within their setting for providing the best possible care.

1.3 Gathering and keeping your wits

Working as a generalist while appreciating the gravity of hand injuries meant that therapists had to keep their wits about them:

> *"You have to multi-task and think on your feet...jy moet kop hou (you must keep your wits about you). You've got to have many thoughts...all in your head at the same time"*
>
> Just Beyond a Just-right Challenge

Participants shared the need to manage the stress they experienced. Social support and personal faith were utilized, and planning for a future outside of the job helped one participant. In addition, the need for 'in the moment' strategies to manage stress and anxiety was relayed. These included taking time to process, plan, research and reflect. A shift from attending to negative self-talk to focusing on the clinical picture was conveyed:

> "The supervision also helped me to … realise...that I shouldn't be so hard on myself... the negative self-talk will affect your ability to practice… when you try and quiet those voices…and focus on the clinical picture that's in front of you...what is needed... then you are able to actually provide better care"
>
> *Learning to (Butter)fly*

1.4 Beyond uncertainty

This sub-theme captures generalists' trajectory of growth through the stress and satisfaction of treating hand injuries. Uncertainty strongly characterised participants' early experience who expressed being "lost with hands from the beginning", "thrown in the deep end", or approaching patients with a "hope (that) I can help". An experience of hand rehabilitation that was stimulating, satisfying, and rewarding was interwoven with this experience.

Although uncertainty lingered, it seemed to be replaced by a shedding of the intimidation associated with hand rehabilitation, which impacted service provision:

> *"I used to refer more of my cases up to (the tertiary level hospital)...but when I realised that we could manage them better here...it's more convenient for the patient...they do not pay... (and)...our turnout rate is probably better"*
>
> Long Service Specialist-of-sorts

Working against a sense of inadequacy, uncertainty and intimidation was evidenced by a growing capacity, a sense of confidence and an accompanying enjoyment of hand practice.

Stress and satisfaction were two contrasting aspects of generalists' emotional experience of hand rehabilitation. This duality was intertwined with participants' learning journey captured in Theme 2 and alluded to in Vignette 2 *Learning to (Butterfly),* presented in Table 8.4.

Table 8.4: Vignette 2 *Learning to (Butter)fly*

This small city is small-town warm. Temperature-hot but also hospitable-warm. The terrain is arid and the hospital grounds a little weary-looking, but the abundance is in the learning opportunities at this hospital. All thirteen therapists in this department take turns to cover hands OPD (outpatient department). They're all generalists doing hands.
Learning to (Butter)fly shares how she took a very passive posture towards learning as a student. She gained foundational knowledge, had plenty of fieldwork exposure, but she was a recipient more than a participant in her learning. She chides herself for the missed opportunities of knowing and doing and growing. Her first year shook passivity out of her like dust from a rug: if she didn't learn, her patients would suffer; the patients that she took an oath to serve. Translating her acquired knowledge into practice was anything but smooth, the transition often being hijacked by her anxiety and wavering confidence.
But incompetence and poor confidence are not a life sentence. She realised that her learning was never going to end. It was actually okay to 'not know', just not okay to stay that way. Supervision played a crucial role in helping her 'out of her head', quieting the negative internal reel, and teaching her to focus on the clinical picture in front of her. The growth has been gradual, the transformation slow but she's *learning to (Butter)fly.*
Panga's (a broad bladed knife used as a cutting tool or weapon) inflicting damage to hands are common, but injury by "gemsbokhoring" (large antelope horns) or "assault with sheep shearers" have been seen here. Falls and work-related injuries are also common. Patients often come from very rural and remote areas. Some patients have never been to a

hospital. Never been in an elevator. Many have been displaced and mistreated in the past and so a mistrust of health professionals isn't surprising. Their culture sees the world through different lenses than the reality that she learnt to perceive through her eurocentric education. So it's a process: to build trust, affirm dignity, seek to connect. To transform together.

Theme 2: Learning Journey

Three sub-themes describe three milestones of generalist therapists' learning journey where learning was enabled or restricted.

2.1 Undergraduate foundations

Participants reflected on the appropriate theoretical foundations that were built into their undergraduate programme. However, some believed that time spent on hand rehabilitation, hand anatomy, and opportunities to 'consolidate the basics' were insufficient. Although one participant reported having good practical exposure, others coveted fieldwork opportunities where they could apply their hands knowledge and develop their skill:

> *"So ...it's challenging...the level of knowledge that you come out of university with and that's no fault of the university, there's just too much to cover...I understand things better after I've practiced it and at an undergraduate level, I never had a hands rotation...my theoretical knowledge only solidifies with practical experience"*
>
> Sassy for the Sake of the Services

It was clear from participants' experience that coverage of hand content did not automatically translate into learning. Participants related how difficulty coping, taking a passive responsibility for learning and missing learning opportunities impacted their ability to assimilate or integrate hands knowledge. Liking or disliking hands and an experience of failure also played a role. The sub-theme suggested essential aspects of an undergraduate hands module but also demonstrated that learning depended on the interaction between personal and teaching-learning factors.

2.2 Transitioning to practice

Participants considered foundational hands knowledge established at university essential. However, participants highlighted the need to translate their knowledge into practice and to 'learn by doing' as they transitioned into clinical practice. One participant highlighted the importance of guidance in supporting this transition:

> *"It was a big adjustment...the anxiety of it all kind of hindered my ability to...put all my theoretical knowledge into practice...but having my supervisors there...guiding my reasoning...and having protocols in place ...that will give me a step-by-step process...helped a lot"*
>
> Learning to (Butter)fly"

One participant explained that undergraduate foundations were essential for the first year of practice, but beyond that, therapists' agency was central to learning and establishing one's practice:

> *"University only plays such a small role (in) your life... after one year it's what you make of it, it's not really what the university prepared you for. So, the first year makes definitely a huge difference, after that, it's how you read up or how you are willing to learn from other people"*
>
> Different in the Lallies (the rolling hills of the Transkei)

2.3 Enabling Continuous Learning

Although the latter sub-theme highlighted therapists' responsibility for learning, factors that enabled or hindered continuous professional development were described. Participants highlighted the gap left by a postgraduate hand therapy diploma that had been discontinued. Participants needed to gain practical knowledge and skills, develop their clinical reasoning, and improve their knowledge of hand anatomy. Participants highlighted that a self-paced course with introductory, intermediate and advanced levelling, would be ideal, a choice of modules advantageous, and that training should be relevant to rural practice. Funding, leave-to-attend courses, and courses that were easy to access would serve as enabling factors. *Capable, Calm, and Called* searched for a course with these characteristics to strengthen her capacity for hand rehabilitation in her context, an experience portrayed in Vignette 4 (see Table 8.5).

Table 8.5: Vignette 3 *Capable, Calm, and Called*

You dodge the potholes and beer bottles. If you don't notice two distinct groups in this town, she'll tell you of the ongoing class division. After checking your boot, security allows you into the hospital to find parking on the sprawling, long-grassed grounds. You walk past the line of patients outside emergency and through out-patients where patients routinely wait up to three hours for their folders to be found in the boxes that fill reception and a nearby storeroom. You understand that a ticket system to address waiting times was installed, but the internet speed that had been signed off for the project was insufficient to support the electronic file system; TVs and tablets installed in each room remain unused. You pass the office where the sole orthopaedic surgeon consults with a cluster of junior doctors who write the clinical notes, learning on-the-go. There used to be four surgeons but egos reportedly clashed. The shortages occasionally show - recently a post-flexor tendon repair was splinted in full extension. But the overstretched Ortho does good work repairing the damage to hands caused by pangas, knives, glass bottles and grinders. You keep walking: a friendly employee directs you to the Allied Health Services area. Without a clerk, rehab staff members pop in and out of the waiting area, greeting patients and notifying their colleagues via *WhatsApp* that their 10-o-clock has arrived. Meet *Capable, Calm, and Called*. She started her morning with a CP patient. She's just finished with a stroke patient. You join her for a patient with a full-house injury (a severe laceration of the volar, distal forearm resulting in injury to tendons, nerves and sometimes arteries). A sense of switching to another cognitive filing cabinet shows on her face: she reads the patient's file and then consults some preparation notes she made from the online hands course that she's doing. She greets the patient: Calm (anxiety contained), measured, listening. She feels a sense of responsibility and of purpose: to fix this patient's hand is to enable him to return to his work at the car-wash in town where the owner insists that if he doesn't return to work immediately, he'll be replaced. She works here because 'it's a calling' and she "loves a challenge". The question is just "how long?" - working without support, without supervision and with no recognition. When she arrived at the hospital in 2019 there were no occupational therapists. Now they are four. For now she's a constant in a service that sees much ebb and flow.

Theme 3: Rising to the challenge

Meeting the demand for hand rehabilitation was stressful and satisfying and involved a learning journey. There were, however, various factors that seemed to enable participants to rise to the challenge of delivering this service.

3.1 Self-directing

Participants directing their learning was clearly one enabling factor. Participants foraged for knowledge: driven by a desire to learn, they sought out and seized learning opportunities. Their maturation as learners was evident: a growing orientation to life-long learning and 'bettering oneself' was observed. This involved assessing and prioritising learning needs and setting learning objectives.

> *"I realize it's going to continue, you're never going to get to a point where you know everything. You're going to continuously have to learn...you need to continuously take that step forward & try and better your knowledge"*
>
> Learning to (Butter)fly

In addition, participants used reflection to direct their learning and develop insight into their limitations as therapists.

3.2 Learning culture

For one of the participants, *rising to the challenge* was fostered by a strong culture of learning and patient-centred care:

> *"I think it's mainly my personality, but I also think there is a setting entity …people are very work driven here... it (is) nothing funny if we're (here)…till 19:00...nobody was expected to stay but it was always people driven to help other people. To help patients because it's just overflowing...people want to learn...it's very much of a culture here"*
>
> Different in the Lallies

The other participants categorically stated during member checking that they did not experience this in their practice context, though they would greatly value a work culture orientated towards learning.

3.3 Friendly expertise

Having access to hand rehabilitation expertise was a great enabling factor, whether colleagues at work or those that could be accessed remotely. The converse, a lack of access, had the opposite influence.

> *“These major cases are very difficult to treat when there is no one to ask...unless you phone and not all therapists are available immediately to consult over the phone… So you try to read up...the patient's sitting in front of you...looking for help, and you are like, "Sorry, I am just going to open my (textbook) in front of you" and that is embarrassing...like saying 'I don't know'...so then that is overwhelming"*
>
> Capable, Calm, and Called

What was noteworthy was the positive impact that approachable, friendly colleagues who were willing to share their expertise had on participants. One participant explained the bolstering effect of a physiotherapy colleague:

> *"It also made a big change when we got a physiotherapist more interested in hands and more skilled in hands"*
>
> Long Service Specialist-of-sorts

Colleagues who were not approachable made accessing expertise burdensome, as *Sassy for the Sake of the Service* relates in Vignette 4 (See Table 8.6).

3.4 Fuelled Clinical Reasoning

Rising to the challenge was further helped or hindered by resources (or lack thereof) to fuel participants' clinical reasoning. Participants required guidance for their reasoning and feedback on the soundness of their clinical reasoning. Although quick advice was sometimes needed, value was perceived in supervisors that facilitated participants' reasoning. A strong need for supervision, mentorship, and support was articulated, and the value of immediate support was highlighted.

In addition to human resources that fuelled clinical reasoning, one participant described the value that a clinical guidance phone application would provide:

> *"There's another (clinical guidance) app … (doctors use)...if you're not sure what medication to give a patient...so they're rolling it out to...a couple of African countries...specific to that (country's) guidelines and… protocols...and I feel like, with OT being as broad as it is, to have something like this, it's not to replace anything...all of your training...but when you're in rural, 'Nowhere Springs', and you don't actually know what to do with the person in front of you, and sometimes you phone and no one answers because everyone's busy. It might be so helpful to have something like this where it really is at your (fingertips), but it's approved guidelines...that have been tried and tested"*
>
> Sassy for the Sake of the Service

Table 8.6: Vignette 4 *Sassy for the Sake of the Service*

The health facility is clean. Natural light and bright art pieces create a sense of hopefulness in this hospital: a stark contrast to the lived realities of patients. This place is not a safe place to be: violence, gangsterism and extortion are normal. Most patients are manual labourers who typically do piece work. Their homes don't have running water and they carry this commodity in 20-30 liter buckets from a communal tap. They cook and boil water on small stoves and wash laundry in tubs. Patients can access good surgery to repair their broken hands but are then told, "Don't use your hands for the next three weeks". Many people don't adhere to therapy. The perverse incentive of accessing a disability grant is common. But is it really perverse when patients need to feed their children? A question that stretches beyond the hospital walls.
She strives to be decent at everything and hands is challenging for her. But she's become comfortable admitting that she doesn't know - especially with hands. Despite strained relationships with her referral centre, and a sense of isolation within the district, she phones and asks for help. If help is not forthcoming, she tells them, "You can think I'm dumb and be snarky with me on the phone. That's ok - I'm still going to phone. Because it's really not about me. It's about the patient. It's not the patient's fault that I don't know. They're stuck with me right now and I'm going to figure out how to deliver the best possible service".
She's been around for almost as long as the facility has existed, starting as the sole occupational therapist. Occupational therapy was not considered in the initial planning of the facility but rehab colleagues advocated for the service. As the

population has grown, services have swelled. With the help of a supportive management team, they now have three full-time locums. A reason for persevering, for advocacy, for cycles of service improvement? "It's my child, this service", she explains. So it's understandable that she's *Sassy for the Sake of the Service*.

Theme 4: Traversing service and system change

Another key characteristic of participants' experience was change: change within services and change within systems that required negotiation. Each participant functioned within a unique set of services and within a broader system, which placed unique demands on them as therapists.

4.1 Gaps and cracks

The services and systems in which participants worked showed signs of fragility: service planning was poor, system difficulties and failures were evident, and infrastructure was strained under the effects of politics, the demand of a rapidly growing population, and COVID-19 implications. The discrepancy between strategic directions articulated at a provincial level and operational realities at a clinical level was noted by one participant. The 'red tape' around administrative processes was taxing, and though improvements were sometimes seen, procurement processes were frequently inefficient:

> *"It's something that has improved over time...but so much is out of our hands...we're just one cog in the wheel... a 6-9 month waiting period (for stock) is not uncommon"*
>
> Long Service Specialist-of-sorts

4.2 Service orientation

Participants noted significant service variation. Service packages at different facilities within the same substructure differed. Although primary-level care is most accessible for patients, the capacity for hand rehabilitation at this level is frequently limited. Referral difficulties within and between levels of care were also noted. To manage this considerable variation, one of the participants explained the need to look beyond one's point of care and adopt a service orientation for strategic service delivery and improvement:

> *"We work at different levels, but if it impacts you, it impacts me...because we're having to pick up the slack for each other...ultimately it's going to benefit us, it's*

going to benefit the patient, it's extra money (for capacity strengthening) we don't have...but it will pay itself"

Sassy for the Sake of the Service

This sub-theme highlighted the need for strategies for the capacity strengthening of therapists to occur within the systems in which they practice, acknowledging the variability, transiency, strengths and weaknesses characteristic of each service and system.

4.3 Strengthened by a team

The presence (or absence) of a cohesive team, though also a transient feature of services and systems, acting as a key facilitator (or barrier). *Long-service Specialist of Sorts* in Vignette 5 highlighted the value of a supportive team (See Table 8.7), while the adverse effects of inadequate staffing and absent supervision were also highlighted:

"Well supervision, there is none. You can technically do what you want to...we do not have any chief OTs apart from...two that are appointed in the province...there is no other senior therapist at the hospital. I came here in 2019 with another therapist...we were (in our second year of practice) and there was no one else...we had to start running the OT department ...from management...to administration...to clinical duties, we had no one to ask. We asked ...colleagues from other departments...we do not have a rehab manager either...there is no one to report to and no one to keep anyone accountable"

Capable, calm, and called

Poor team dynamics, a lack of support and recognition, and a sense of isolation were reported as features of dysfunctional teams. A referral centre not sharing clinical resources (e.g. clinical guidelines and home programmes) was a frustration for one participant and viewed as a form of information inequity.

In contrast to this, the presence of supportive management, multi-disciplinary support, and a sense of being valued in the team strengthened the influence of a cohesive team. Established services and a core team built over time was another enabler. Participants highlighted the importance of therapist networks and workgroups while also acknowledging their transience.

4.4 Resources: team and tools

Participants also negotiated the absence or presence of human and physical resources within the services and system in which they worked. A limited or absent orthopaedic service,

fluctuating medical management of patients, and a perpetual turnover of doctors had a constraining effect. Improper diagnoses and inappropriate medical or surgical management were not uncommon. In contrast to this, participants with an orthopaedic service and access to surgeons appreciated this benefit.

Inadequate staffing (including occupational therapy staff), insufficient therapists at the primary care level, and the limited capacity of these therapists to receive referrals for hand rehabilitation created a further barrier. The lack of a receptionist or administrative support in a department was challenging and disruptive for many participants.

While a physiotherapy colleague with interest and expertise in the management of hand-injured patients strengthened one participant's confidence, another participant identified the limited involvement of the physiotherapist as a barrier:

> *"I think the physio needs to be a little more actively involved with hands...their focus is physical...they get so much more (in undergraduate studies) like joint mobs...and yet for some reason when we start working...'It's a hand injury so now it's OT'...but its range…is range is range...it doesn't matter if it's an ankle or the wrist, it's still range"*
>
> Sassy for the Sake of the Service

Network access and platforms for sharing and communicating with other therapists were beneficial, and physical resources for delivering hand therapy were identified as important factors by both participants with good access and those with limited access to these resources. Access to a seamstress for custom pressure garment fabrication was a further enabler.

Table 8.7: Vignette 5 *Long-service Specialist-of-sorts*

It's 'hands day' for this occupational therapist. The patients this morning include a 28-year-old with a PIPJ dislocation who is ashamed to admit that he earns R28/hour; the patient with finger fractures caused by "die geskietery" (the shooting), the man stabbed by his girlfriend with a braai (barbecue) fork, the lady with OA, high BMI and peripheral nerve compression, the lady with bilateral De Quervain's, medial epicondylitis and trigger finger; and the polytrauma PVA (pedestrian vehicle accident) patient sent from emergency who needs a wheelchair to go home.
Three decades into an occupational therapy career and the generalist role is a good fit: variety keeps it interesting and he's his own boss. And it's rewarding: sometimes he feels like a specialist, because he's the only resource the patient can access. He's able to retain a holistic view of patients, ensuring that they're referred to all the necessary services. The benefit of experience means he's familiar with services, understands prognoses and makes clinical decisions with greater ease than his novice colleagues. Mentoring young colleagues in basic hand rehabilitation is also enjoyable.
The gang violence flares up occasionally, hindering patients accessing care. But this Long-service Specialist-of-sorts feels quite safe driving to work and popping across the road to the convenience store. That said, it's not uncommon for people to

be mugged for their crutches and wheelchair footplates stolen for drug money. With high unemployment, job seekers have given up. Clothing factories and engineering works contribute to repetitive strain injuries that are part of the caseload. Hand injuries from violent crime and gangsterism are common, and stroke and chronic diseases of lifestyle also contribute to a high patient load. His diary is booked up for the next month, but colleagues from within the sub-district have stepped in to assist him with some clinics. His supportive team makes all the difference.

Theme 5: Once upon a hand injury

The final theme conveys a dimension, or features of the 'bigger picture' that contextualises the experience of sustaining a hand injury for patients and delivering hand injury care for therapists.

5.1 There is more to the story

The experiences of two patients introduce this sub-theme that draws attention to aspects of the lived realities of patients, one of normalised violence and the other of stigma related to injury:

> *"Interpersonal violence is crazy high (here), so that boy that we saw...he was stabbed by his friends...he hasn't opened a case because he's like, 'they were drinking', so he doesn't think that he should because it was an accident but he's also so scared to go and live his life. He's 16"*
>
> Sassy for the Sake of the Service

> *"I did have a patient...who said she covers up her hand when she walks around because the people are going to say that she was bad and now it's cursed..."*
>
> Just Beyond a Just-right Challenge

Patients very often live in unsafe communities in which violence is "normal", poverty pervasive, and the burden of disease (including hand injuries) high and increasing. Unemployment, poor labour and social conditions, as well as alcohol misuse, contribute to the challenges that patients face. Therapists' knowledge of the risk factors for hand injury varied but suggested an unexplored role for handinjury prevention.

5.2 System transference

For some (though not all) participants, patients' previous negative health service encounters led to marked mistrust that needed to be approached sensitively with cultural humility and patience towards building trust:

"We have patients from all over (the Province)...it can become complex because sometimes you'll have patients that have never been to a hospital...a lot of times they have this...dislike for health professionals and what they represent because it's totally the opposite from their culture or from what they believe or their daily lives... so it's your responsibility to show them that you're actually not here to disrespect them or their cultures or try and hurt them..."

Learning to (Butter)fly

5.3 A different ball game

The 'different' realities of participants' practice demanded adaptation: adaptation to limited or absent hand surgery intervention, poor or delayed referrals, secondary complications, and poor outcomes. One participant explained:

"They do a quick repair and they send the patient home for three weeks without referring to rehab. So it is poor referral. And suddenly the patient comes back and the protocol you normally use [is inappropriate]... it was a hand that was immobilised for three weeks. So things like that. Those exceptional cases...they are exceptional cases but they happen quite often."

Capable, Calm, and Called

Participants perceived a need for protocols to guide them but, at the same time, found that the features of their practice meant that they could not follow a protocol. This tension communicated a need for guidelines that outlined the principles of intervention (principles typically embedded in protocols) to enable adaptation to varying presentations and rehabilitation limitations.

Frequent language discordance between participants and their patients made communication challenging, mainly when the services of an interpreter were not available. Patient adherence was identified as a barrier, and attending follow-up appointments was challenging for patients. These challenges communicated a need for appropriate and accessible home programmes:

"Our attendance rate it pretty good, because we are in the community. I think that adherence is not always great. People say yes, and then they do not do their exercises. That is a big challenge, to get people to understand that their recovery depends largely on their compliance. It is quite an issue"

Long-service Specialist-of-sorts

Beyond these challenges articulated by most of the participants, the final vignette, It's *Different in the Lallies* (see Table 8.8), illustrates some of the unique contextual features of practising hand rehabilitation as a generalist in rural South Africa that created further demand for adaptation.

Table 8.8: Vignette 6 *Different in the Lallies*

It's different in the 'lallies' – the rolling hills of the Transkei. Hand rehabilitation is different from what one learns at University: one can't assume that a good protocol will produce a good outcome. It's not unusual to make a splint from a gutter sourced in the scrap yard. People live far from the hospital and don't have money to come for follow-up – so they 'nyamezela' they endure until the pain sends them back, often after seeking help from the amaxwele (herbalist) or amagqirha (diviner).

The demand to be resourceful is exciting but it's demotivating when patients need surgery that they're not going to access in an overwhelmed system. At university we learnt how to manage conditions that were surgically treated. Here we are just trying to manage the disability in the hand.

It's also different in that people live simple lives: they own their land and live largely subsistence lifestyles. Community celebrations (like weddings) are community celebrations: everyone is invited. Occupations are inherited: passed down from one generation to the next but new occupational opportunities remain sparse. And life burdens rest heavy: many stresses, many kids, money, death.

Hand conditions are common, including arthritis. But teaching joint protection principles looks very different. It looks different for the mother who is caring for a household alone, fetching water at the river and doing laundry by hand. Breaking up tasks isn't an option: the tasks need to be done today for tomorrow it will rain.

Road accidents are very common, minor injuries that turn to major sepsis are common, as is interpersonal violence. Alcohol is often involved, or long-held conflict erupts between neighbours and one mamma throws hot porridge at another. Abuse in the home is also not uncommon.

Community assault is also a reality. The community hangs suspects from trees. Some time ago, three men suspected of raping a girl in the community all developed bilateral radial nerve injuries after being hung. Precious splinting material was made to make splints for these men – two of whom were guilty.

So-yes – for me - *It is Different in the Lallies*.

Support and development: *what* is needed?

Considerations for the capacity strengthening extrapolated from study themes are tabulated below, along with selected quotes from participant feedback during member-checking.

Table 8.9: Considerations for support and development

A. Individual	Selected quotes from member-checking interviews
Resilience: including managing anxiety, self-regulation, recruiting support, self-care, holding realistic expectations for self/respecting personal limitations, normalising feelings of uncertainty *(sub-themes: 1.1; 1.3; 3.1; 4.1; 4.2; 4.3)*	"Having a group with individuals going through similar experiences would be so helpful- to learn from each other's self-care and coping strategies, and to help manage our expectation of ourselves… Greater understand (ing) of patients' experience of services received would be so helpful… I suspect that I have in the past wasted much time communicating in a way/ suggesting exercises that the client doesn't understand/ identify with". *Just Beyond a Just-right Challenge*
Organisational skill: prioritization *(sub-themes: 1.1; 1.2)*	
'Life-long foraging': identifying & prioritising own learning needs *(sub-theme: 1.1)*	
Reflection and reflexivity: including the development of cultural humility and an appreciation of indigenous occupations & patient experiences. *(sub-themes: 3.1; 5.1)*	

B. Team / human resources	
Affirming & establishing the role of the specialist & the generalist: acknowledging strengths of generalists and specialists; managing expectations of 'specialists' *(sub-themes: 1.1; 2.2; 3.1)*	"I think this (acknowledging generalist strengths) is often overlooked/down- played by colleagues who have a narrowed caseload" *Sassy for the Sake of the Service*
Access to expertise for: • Complex cases • Guidance & feedback • Support • Ethical prioritization • Group mentoring, *WhatsApp groups*, Communities of Practice *(sub-themes: 1.1; 1.2; 1.4; 2.2; 3.3)*	"I've recently started a *WhatsApp* group with doctors, surgeons - a group [in] regards [to] wound care and it is amazing how eager people are to share advice" *Different in the Lallies*
The development of supervisors & mentors (facilitate clinical reasoning) *(sub-themes: 3.3; 3.4)*	"Especially in terms of being able to identify different people's learning styles & being able to shift/ adapt your style to best assist them" *Sassy for the Sake of the Service*
Strengthening the role of the physiotherapist *(sub-themes: 3.3; 4.4)*	"I don't agree completely - something (would) have to change in physio undergrad, I've had Physiotherapist involved in hand rooms and they often left out important management or principles that made me negative to involve them any wrist or hand therapy." *Different in the Lallies*
Team cultures: Patient-centred learning and development *(sub-theme: 3.2)*	
Communication: Basic proficiency in local language & competence for working with an interpreter *(sub-theme: 5.1)*	"Would be helpful if language courses were refreshed during clinical exposure years at UG" *Sassy for the Sake of the Service*
Adopt a service orientation & develop strategies within services *(sub-theme: 4.3)*	"The concept of continuous improvement of self & service for patients should be built in at every level of care within the health system - we can all be change agents!" *Sassy for the Sake of the Service*
C. Education	
Undergraduate (UG) Education • Solid theoretical foundation with opportunity to translate to practice (including skills) • Fieldwork opportunities • Nurture enjoyment & sense of efficacy • Facilitate engaged & active learning • Develop resilience (managing anxiety) • Integrating anatomy *(sub-themes: 1.1; 1.4; 2.1)*	"In my UG … basics were taught first, and then quickly built on with very detailed treatment protocols for different conditions. I recall practical demonstrations in class only involving splinting. What could possibly have been helpful is if there had been a bit more time spent understanding the basics of anatomy, component problems (oedema, scarring, healing structures etc.), and treatment protocols. Thereafter, case study examples of patients and practicing the applicable techniques (oedema massage, scar massage, using Coban, finger socks etc) on each other in class (not just splinting techniques)- and the lecturer observing your technique and giving feedback. Then learn about more complex principles and treatment protocols before seeing hands patients in clinical block." *Just Beyond a Just-right Challenge*
Postgraduate Education & continuous professional development (CPD) • Practical equipping, self-paced, relevant for rural, choice of modules • CPD accessible in terms of cost, pitch, and location *(sub-themes: 1.1; 2.1; 2.3; 5.1)*	"Opportunities to maintain access to universities libraries as post- grads in health science could be a game changer for patient management" *Sassy for the Sake of the Service*
D. Physical Resources	
Resource support for CPD (eg. leave, finance, travel, accommodation) *(sub-theme: 1.1)*	*"OT's across the country could agree to contribute to this - there could be a predetermined layout/ format etc, and pre-determined basic HEP's {Home exercise Programs] with the option for more to be added as they come up. Strong suggestion for actual photo's to be used instead of line drawings" *Sassy for the Sake of the Service*
Hand Therapy resources and equipment *(sub-theme: 4.4)*	
*Home programme bank *(sub-theme: 5.2)*	
Principles-driven protocols/algorithms that include the absence of surgery *(sub-theme: 5.3)*	
Application-based clinical guidance tailored to context *(sub-theme: 4.1)*	
Network access *(sub-theme: 4.4)*	
E. Service or system strengthening	
Strengthening of hand surgery services *(sub-theme: 4.4)*	"The Department of Health are training therapists for a year for private practice". *Capable, Calm, and Called* "Retaining of permanent staff and giving (more experienced) therapists the chance to apply for post in (my province) is such a struggle…there are Community Service
Procurement: • Addressing procurement difficulties • Leveraging the tender process *(sub-theme: 4.1)*	
Referral systems: situation-specific team problem-solving approach to	

referral intricacies *(sub-theme: 4.2)*	occupational therapist absorption posts more than other posts…it actually creates more of a problem…(getting) absorbed with no support or no expertise" Different *in the Lallies* "Health (the Department of Health) = bucket for societal ills; within (my province) a WoSA (whole of society approach) is one strategy being utilised to develop "upstream" interventions within substructures/communities. Data from health would be valuable to use/ guide possible prevention/ promotion methods within defined geographical areas" *Sassy for the Sake of the Service*
Develop hand-injury prevention role *(sub-themes: 3.3; 5.1)*	

8.4.4 Discussion

This instrumental multiple-case study described the experiences of generalist occupational therapists working as fully qualified practitioners in the South African public sector in order to identify their support and development needs for delivering hand therapy. An extensive list of considerations for capacity strengthening was extrapolated and directed toward the *individual*, the *team*, *education*, *physical resources* and the *service/system*. Selected recommendations from each category are discussed in this section.

Strengthening the capacity of the *individual*

Participants expressed the need for opportunities to develop resilience, reflective and reflexive skills, life-long learning behaviours, and organisational skills. There are likely many other competencies for which learning spaces and support are needed that did not emerge from this data. The comment shared by *Just Beyond a Just-right Challenge* suggests that a supportive group of therapists may facilitate this. Communities of practice (CoP) represent one promising mode of facilitating learning and support. Including therapists with specific expertise in the CoP can also contribute to strategically developing the services delivered by generalists[148]. Building critical reflexive activity into the CoP's interactions will also equip members to practice in a regardful[215] and contextually responsive manner[145].

Strengthening the capacity of the *team*

A number of sub-themes highlighted the role of the physiotherapist in providing hand therapy. Hand therapy in South Africa is more frequently provided by occupational therapists than physiotherapists[176], and anecdotal evidence suggests a multidisciplinary socialisation that renders the occupational therapist the recipient of all hand rehabilitation referrals. This is in contrast to many other countries where hand therapy is the joint responsibility of both the

physio and occupational therapist. While constructing themes, it became evident that more active involvement in physiotherapy would be integral to supporting generalist occupational therapists. This impression was confirmed during member checking. However, participants voiced two reservations: caution around the blurring of scopes of practice and the insufficient undergraduate preparation of physiotherapy students. No evidence of hand therapy inclusion in undergraduate physiotherapy curricula could be found; however, it is likely that learning outcomes dedicated to hand therapy in South African physiotherapy curricula are limited. The training that physiotherapists receive, as well as their role in hand therapy in South Africa, requires further investigation to determine if their contribution is to be more effectively harnessed.

Concerns around the boundaries between physiotherapy and occupational therapy scope of practice are not uncommon in South Africa and have been reported by occupational therapy colleagues in other contexts[275]. Working within the regulations of one's scope and maintaining professional identity integrity is essential. However, these concerns need to be considered alongside arguments for moving away from restrictive siloed service delivery[276]. Improving access to essential rehabilitation must guide the contributions of our professions, informing tasks that can be shared while ensuring that we retain and strengthen the unique contributions of each profession. Occupation-centred learning outcomes for hand therapy are a critical way for occupational therapy's unique contribution to be built into undergraduate foundations[277].

This discussion, along with the expressed need for guidance, feedback and assistance, essentially speaks to the need to mobilise hand therapy expertise articulated in the first three themes of the study (*sub-themes: 1.1; 1.2; 1.4; 2.2; 3.3)* both geographically, in terms of service delivery and resources, but also with regards to the mobilization of needed knowledge and skills. If we consider the capacity strengthening of the *team* alongside *system and service strengthening*, it is clear that improved human resourcing is critical to securing and retaining therapists with expertise in the system. Therapists, however, still require the capacity and skills to provide the needed mentorship and supervision that generalist therapists need. The recommendation also shows that the needs of these therapists' are similar to those articulated by novice generalist therapists[12,248]. Effective interventions to equip mentors and supervisors are urgently needed. Learning opportunities may take the form of continuous

professional development activities, communities of practice, or even participatory action research. However, integrating mentorship into health systems strengthening[278], and ensuring institutional support for interventions[279] is essential.

In addition to improved human resourcing, it is necessary to look at how the skills and reach of the generalist can be combined with those of the specialist to improve hand therapy services synergistically. Visagie and colleagues[276] advocate for this kind of synergy for the improved provision of assistive devices in South Africa. Williams and colleagues[280] recently developed and successfully piloted an alternative model of care (MOC) for the provision of rural hand therapy services in Australia. In their MOC, a clinical lead's service (specialist/accredited hand therapist) articulates with that of ten rural, generalist clinicians. The MOC consists of initial involvement of the lead clinician with the patient, comprehensive handover to the rural therapist, regular case conferences, shared patient care, consistent contact for the generalist therapist and contextually relevant education. Though not without its challenges, the MOC provides a way of making expertise accessible to generalists, and demonstrates the potential for synergistically mobilising available human resources to strengthen hand therapy.

Physical resources

Smartphone application-based clinical guidelines for hand therapy may go a long way in providing the guidance that generalist therapists need in the absence of being able to access colleagues with expertise. This resource would provide the immediate, 'real-time' guidance that these therapists need. The experience of the rural-based participant in this study highlights the need for these guidelines to be tailored to contextual realities, for example, guiding rehabilitation management when surgical services are not available. Guidelines should be downloadable to enable offline use[281], especially in contexts like South Africa where network coverage varies and electricity load shedding is common.

Education

There is a clear and urgent need to provide occupational therapy students with opportunities to construct hand therapy learning through practical fieldwork opportunities. Pressured

undergraduate curricula and the restricted capacity of the clinical fieldwork platform in South Africa necessitate innovative crafting of opportunities. A student experiential learning clinic has been piloted in the USA to facilitate student learning and provide free hand therapy to under-insured service users[282]. A similar model could be explored in South Africa, but it should be multi-disciplinary and decentralised in order to take intervention as close to patients' homes as possible. Rehabilitation camps have successfully been used to improve physical performance and independence for some patient groups[283]. The feasibility of hand therapy camps or block therapy models could also be explored as a potential method for providing students with fieldwork opportunities. The elective fieldwork opportunity afforded many health science students could also be capitalised on. An annual elective, held in a different part of the country each year, can be used to combine student learning with a local hand therapy capacity-strengthening initiative. Rethinking fieldwork models also allows for building prevention and promotion activities into the typically clinic-based fieldwork experience, providing invaluable opportunities to experience services that are built on a community-based rehabilitation approach.

Strengthening service and system capacity

The need for strengthening hand surgery services was salient and is not surprising. The global need for surgery is profound, particularly in LMICs[284], and equitable access to hand surgery services requires urgent attention. A national strategic plan needs to consider infrastructure, workforce, service delivery, financing and information management[284]. However, for surgical outcomes to be improved, hand rehabilitation must be included in this planning[285].

Human resources, referral systems and procurement processes were also extrapolated from findings as areas requiring intervention. Challenges around these variables looked slightly different for each participant. As analysis progressed, it also became evident that a constant in each of the therapists' experiences was *change*: in staffing, demand for hand rehabilitation, resources, and processes – whether positive or negative. Identifying change as a constant contributed to an appreciation that the service and system within which each therapist worked presented varying strengths, weaknesses, opportunities and threats. Variability and change are therefore essential to consider when exploring capacity-strengthening recommendations to avoid inflexible, near-sighted or redundant interventions.

South African scholars[276] emphasize the importance of systems thinking for understanding rehabilitation service provision difficulties and making recommendations for improvement. A systems lens is essential to appreciate the complex nature of healthcare systems and their interacting parts[276]. *Rehabilitation in Health Systems*, the World Health Organisation's (WHO) strategy for strengthening rehabilitation, confirms the importance of a systems approach[242].

Dayal, a local reseracher[163] argued a decade ago that capacity-strengthening efforts must look beyond individual development and target the constraints to capacity imposed by the institutional environment[163], one important aspect of a health system. She identified four agencies central to guiding rehabilitation services: the universities that train students, the Department of Health that delivers services, the Department of Public Service and Administration that employs graduates and the Health Professions Council of South Africa that guides and regulates the profession. However, numerous examples of misalignment of mandates from these agencies exist. Poorly articulated procedures have resulted in poor service coordination, diverse approaches and role confusion, leading to rehabilitation services that look different at each point of care. Though national rehabilitation policy mandates a shift to a Primary Health Care approach, managers were not equipped to effect this change[163]. Despite community-based rehabilitation being prescribed by policy[162] to achieve effective, efficient and equitable rehabilitation, services remain rooted mainly in a biomedical approach for individual therapy[163].

So, appreciating the system weaknesses highlighted in both this study and others, what should be done to provide the support and development that generalist occupational therapists delivering hand-injury care require? Leadership and governance, one of the six health system building blocks proposed by the World Health Organisation (WHO), requires urgent attention within rehabilitation[242]. All ten of the key activities prescribed by the WHO to strengthen rehabilitation necessitates leadership and governance that are equipped to strategically direct rehabilitation services. So, capacity on the ground (the generalist workforce) and capacity at the top (leadership and management at national, provincial, and district levels) are required for quality services for hand-injured patients in the public sector to be secured.

There is some evidence of the fruit of progressive leadership and governance. Between the time of data collection and member checking, two participants described how additional occupational therapy posts situated within a whole-of-society (WoS) approach were being created in one Province. A whole of government (WoG) and WoS approach harnesses governance, action and collaboration *across sectors* to improve health. A WoS approach partner with a broad base of stakeholders[286] and is built on many of the principles of a community-based rehabilitation approach, which is critical to contemporary rehabilitation practice[162]. The funding of posts for this work is a promising development, and advocating for the prevention of hand injuries to be included in this work needs to be explored.

Strengths and limitations

This study is the first to report on the experience of fully registered occupational therapists delivering hand rehabilitation in a generalist capacity in South Africa. The study is also unique in presenting proposed interventions to strengthen the capacity of these generalist therapists, which may be considered for application in other global south contexts.

Despite attempts to maximise the variation in case selection, the racial and worldview demographics of participants were limited. This reflects the problematic lack of diversity in the occupational therapy profession in South Africa[150]. Limited variation in terms of geographical area, setting (rural and urban) and level of the healthcare facility is also acknowledged. These factors may restrict the transferability of results but also present opportunities for future research in other contexts using similar methodology, or attaining a broader view of perspectives using quantitative methods.

Against the backdrop of historical markers of the occupational therapy profession in South Africa, potential limitations associated with the positionality of participants are acknowledged. *Learning to (Butter)fly* highlighted that the occupational therapy workforce in South Africa was trained in curricula largely founded on Eurocentric norms and values. Additionally, the occupational therapy workforce is poorly representative of patient demographics. Therefore, descriptions of contexts and patient experiences may represent an 'outsider'[142] perspective. This perspective is important, but it also identifies the need to generate authentic accounts of 'insider'[142] patient perspectives of context and their experience.

8.4.5 Conclusion

"There are rarely single solutions to complex problems"[157:46]. However, understanding the experiences of generalist occupational therapists delivering hand therapy in South Africa has broadened our understanding of the problem of universal access to hand therapy in South Africa. The five themes generated from this study describe the experience of generalist occupational therapists in a Global South rural context, delivering hand therapy as *stressful and satisfying* and *a learning journey*. *Rising to the challenge* of delivering this rehabilitation is aided and hindered by various factors explained by participants. *Traversing system and service change* was a reality that participants had to negotiate, and *once upon a hand injury* captured aspects of patients' lived realities and some of the complexities of service delivery. Targeted capacity-strengthening recommendations extrapolated from participants' experience include *individual strategies, team and human resource strategies, education, physical resources,* and *system and service-level strategies*.

CHAPTER NINE: Achieving consensus on Generalist Therapists' Support and Development Needs (Study 3)

9.1 Manuscript details

Chapter nine is presented as a manuscript that has been prepared for submission to the Journal of Hand Therapy according to the Journal's submission guidelines. The manuscript reports the results of Study 3, which aimed to achieve consensus on support and development strategies for generalist occupational therapists delivering hand-injury care in South Africa.

The manuscript reports on the experience of delivering hand-injury care of six generalist occupational therapists registered as independent practitioners in South Africa.

9.2 Details of author contributions

Title of the publication: Strengthening Capacity for Universal Basic Hand Therapy in South Africa: A Consensus Development Study

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Impact Factor: 1.908

9.3 Details of author contributions

The contributions made by each author are tabulated below using The Contributor Roles Taxonomy (CRediT)[156].

Table 9.1: Contributions made by each author – Manuscript 7

	Van Stormbroek	Myezwa	O'Brien	Van der Merwe
Conceptualisation				
Method				
Resources				
Manuscript writing draft				
Manuscript writing review and editing				

Supervision				

9.4 Manuscript: Strengthening Capacity for Universal Basic Hand Therapy in South Africa: A Consensus Development Study

9.4.1 Abstract

Access to hand therapy is a challenge in low to middle-income countries but is also restricted for many communities in high-income countries. As an essential part of the global rehabilitation community, hand therapists must consider how to extend access to basic hand therapy services and support the therapists who provide these services.

This study sought to identify capacity-strengthening strategies for generalist occupational therapists responsible for delivering hand therapy in the South African public health service. A consensus development methodology was employed. A hybrid consensus development conference was used to gather local and international evidence pertinent to the project's aim. Stakeholders (n=14) representing service users, service providers, education, research, and clinical practice systematically considered the evidence presented at the conference using a nominal group technique.

Stakeholders identified ten priority areas for action: supervision and support; resources; policy, leadership and governance; education and training; professional knowledge and skill; effective referral and care pathways; data and evidence for service improvement; professional attitudes, behaviours and dispositions; inter- and intra-disciplinary action and cohesion; and an intersectoral systems approach.

These priority areas are presented and discussed as strategic, educational, organizational, and operational priorities for strengthening the capacity of generalist occupational therapists to deliver quality hand therapy. Recommendations suggest ways that both local and global hand therapy communities can take action to position hand therapy as an essential part of universal health coverage.

9.4.2 Introduction

As the World Health Organisation has called for the inclusion of rehabilitation in universal health care (UHC)[57], the hand therapy and hand surgery community is being called to urgently respond to the global need for universal hand care coverage. In early 2023, the Editor of the International Federation of Societies for Surgery of the Hand quarterly publication (IFSSH Ezine) described the problem and prescribed a solution for hand surgery:

> *"The majority of our human race… still doesn't have access to the most essential healthcare services…the training of Hand Surgeons is unquestionably valuable, but teaching frontline healthcare workers how to manage hand conditions properly might be of even more value…management of common hand conditions and injuries should be part of Primary Healthcare"*[287(p.4)]

Similarly, the training of specialist hand therapists is 'unquestionably valuable', but the hand therapy community also need to think of their 'frontline workers'. In the South African public healthcare sector, which serves around 80% of the population[69], these frontline workers are typically generalist occupational therapists. Generalist occupational therapists (OTs) work across multiple areas of occupational therapy practice and may service one or numerous healthcare facilities – from primary healthcare clinics to hospitals further up the referral chain. The nature of their caseloads requires that generalist OTs develop and maintain expertise across a broad range of practice areas[288]. A large proportion of these therapists are novice OTs completing a year of compulsory service in rural and underserved settings directly after graduating. This group of therapists have limited experience and is known to work in challenging contexts with few resources and limited supervision and support[11]. They typically work in communities challenged by poverty, strained public systems, and poor basic management of hand injuries and conditions[288]. Delivering hand therapy as a novice in these contexts is often overwhelming, and developing sound clinical reasoning for hand therapy without occupational therapy colleagues or resident supervision and support structures is taxing. Additionally, available treatment protocols and algorithms to guide therapists are often inappropriate for use in these settings, given that patients may have no or severely restricted access to surgery, present late, and may only be able to attend hand therapy sessions once a month[288].

Another group of these frontline workers are fully registered OTs working in a generalist capacity. Although they have more experience than their novice colleagues, they typically

have less than five years of experience working in hand therapy, as therapists with >5 years of experience typically move into the private sector[47,48], which services around 20% of the country's population[69]. This group of generalists is known to experience hand therapy as satisfying but also very stressful as they often treat complex and severe hand injuries of patients dependent on their hands for their livelihood. The gravity of this responsibility is experienced as both a burden and a privilege. Despite having a few years of clinical experience, these therapists continue to struggle to access the support and learning opportunities that they need to develop the necessary hand therapy expertise. The health contexts in which they work are characterised by change, with barriers and supports for hand therapy service delivery in constant flux. This dynamism necessitates that a systems and service orientation be taken to hand therapy delivery in order to harness opportunities and mitigate service weaknesses within a given referral pathway (Cite Study 2B).

The demand forfor these generalist therapists to provide hand therapy is high. The substantial burden of hand injuries in South Africa is mainly caused by interpersonal violence, road accidents[25] and work-related injuries[29]. In 2018, at just two of South Africa's public hand surgery service centres, 26,000 hand-injured patients were seen and 3,900 surgeries performed[25]. Novice generalist OTs have been known to treat around 20 patients with hand pathology each month, resulting in hand therapy constituting a significant proportion of their generalist caseload[11].

The importance of restoring hand function is not disputed as the hand is inextricably linked to participation in work, community, and family life[8]. A South African patient who sustained severe trauma to his hand aptly spoke of his hand as "this precious thing" while relating his experience of the profound emotional impact of hand trauma[289]. It is important to appreciate that in low to middle-income countries (LMICs) where manual labour is common, this 'preciousness' relates strongly to the hand being "the earning tool"[18] and a means to participate in occupations of subsistence or survival[290]. This illustrates the necessity and urgency for the hand therapy community to strategise towards universal hand therapy coverage as an essential contribution towards global sustainable development[291].

The contribution that generalist OTs make to extending hand therapy access in South Africa and their capacity for doing this is becoming a strategic focus in South Africa. In contrast to

many other LMICs, South Africa has well-developed hand therapy expertise that primarily resides in the country's private health sector[48,176]. This local expertise, and a number of other contextual features, was considered as this study sought to identify contextually responsive strategies for the support and development of generalist OTs delivering hand therapy within the South African public sector.

9.4.3 Methods

A consensus development methodology was selected for the study, with a hybrid of the consensus development conference (CDC) and nominal group technique (NGT) chosen. The CDC was chosen as it allows for a diverse panel of stakeholders[152], enables the robust consideration of evidence and synthesis of information, andallows the end-users of the product to act as key stakeholders in the consensus development process[153]. The steps of a CDC typically include speakers who present evidence, an audience that is able to respond to the evidence presented, and a panel that considers the evidence presented and then produces a guideline based on its deliberation[292]. The CDC, however, lacks a structured method to guide panel discussion[154], so for this reason, an NGT was used to conduct the direct discussion following the conference[155].

The Consensus Development Conference

A call for abstracts was circulated in 2022,, and an infographic video explained the purpose of the CDC (https://youtu.be/nbOzWoqWoio). The invitation was circulated via the South African Society of Hand Therapists and social media. Invitations were also sent to hand therapy societies in other LMICs or countries known to have large rural or remote populations who were likely to be able to contribute relevant evidence. Also invited were authors of South African hand therapy studies that had been identified in a 2021 scoping review[293]. Guidelines for developing an abstract were circulated with the abstract call to encourage submissions from diverse contributors potentially unfamiliar with academic contributions. The abstracts were peer-reviewed by an expert OT researcher. To further support non-academic contributions, the reviewer provided authors with feedback on their abstracts and the opportunity to revise their contributions. The hybrid (online and in-person) conference was held in Pretoria, South Africa, on 24th February 2023. Online (via *Zoom*) and in-person audiences were encouraged to share their impressions of the evidence presented via the *Zoom* Chat function or on sticky notes included in the attendee conference packs.

The stakeholder panel

The CDC method involves a panel of stakeholders that consider the evidence presented at the conference and engage in a consensus development process[292]. Although 6-12 stakeholders are recommended, 14 stakeholders were included in this study to ensure adequate representation of essential stakeholder groups. Details and rationale for the selection of stakeholders are outlined in Table 9.2.

Table 9.2: Stakeholder selection and recruitment

	Group represented by stakeholder	Rationale for inclusion as stakeholder	Identification & recruitment
Service Providers			
1	Generalist occupational therapist (fully registered) working in *rural area*	Generalist occupational therapists are the target population of the study and the 'end-users' of support and development strategies identified through the consensus process.	Stakeholder identified as rural hands expert by the President of Rural Rehabilitation South Africa (RURESA)
2	Generalist occupational therapist (fully registered) working in an *urban area*		Stakeholder proposed by the President of the South African Society of Hand Therapists (SASHT)
3	Generalist occupational therapist (novice) who completed compulsory service year in *urban* area in 2022		Invitation to participate circulated via social media
4	Generalist occupational therapist (novice) who completed compulsory service year in a *rural* area in 2022.		Invitation to participate circulated via social media. No responses were received from rural-based therapists. This therapist had previously indicated an interest in the research project because of her experience of delivering hand therapy in a rural community. She was therefore invited to participate.
5	Physiotherapist working in hand therapy	Hand therapy is predominantly delivered by occupational therapists in South Africa[176]. Despite this tradition, the role of physiotherapy in hand therapy is important to consider.	Stakeholder nominated by the President of the South African Society of Hand Therapists (SASHT)
Service Users			
6	Patient who sustained a traumatic hand injury and received hand therapy in the *public health sector*	Patients, increasingly included in expert panels, have direct experience with hand injury[294] and are the end-users of the services delivered by generalist occupational therapists.	Occupational therapists were invited to recommend patients who had received hand therapy. Interested patients who consented to their details being shared were contacted via phone and invited to participate.
7	Patient who sustained a traumatic spinal cord injury and received hand therapy in the *private health sector*		
Professional / Educational entities			
8	South African Department of Health (DOH)	As the employer of generalist occupational therapists, the DOH is a key stakeholder.	An invitation to the Deputy Director (DD) for Disability and Rehabilitation of the National Department of Health was extended via email. Due to prior commitments, the DD extended the invitation to Gauteng Province Rehabilitation, who identified a representative from the Province.
9	President of the South African Society of Hand Therapists (SASHT)	SASHT is a key stakeholder in the delivery of hand therapy	The President was invited via email to participate.
10	Representative of the South African Society for Surgery of the Hand (SASSH)	SASSH is a key stakeholder in the deliver of hand-injury care	Identified in collaboration with the President of SASSH and invited to participate via email.
11	Occupational Therapy Education	Occupational therapy education is essential to the initial and on-going preparation of therapists for practice.	An occupational therapy lecturer from a sister University, who has no collaboration history with the first author around the research topic, was invited to participate via email.
12	Occupational Therapy Research and Practice	Strengthening research capacity and producing quality evidence is	An occupational therapist with research and public sector clinical expertise was invited to participate via

		essential to strengthening rehabilitation in health systems[57].	email. The individual had no collaboration history with the first author.
13	National Occupational Therapy Forum (for public service)	The forum is the professional association that represents public service occupational therapists in South Africa.	The chairperson of the forum was invited to participate via email.
14	Occupational Therapy Association of South Africa (OTASA)	OTASA is the national professional association for therapists in the public and private sectors.	The President of OTASA was invited to participate and elected an executive committee member to represent the organisation.

Stakeholders (n=14) attended the conference in person (n=12) or online (n=2). They were orientated to their role prior to the conference and were given a conference booklet (see Appendix H) that reiterated this orientation and encouraged stakeholders to document their impressions during each of the conference presentations.

The consensus development process

The day following the conference, all stakeholders met in person (n=14), along with the first author and a skilled facilitator responsible for guiding the consensus development process. Prior to initiating the nominal group technique (NGT) process, the stakeholders reviewed the impressions that the conference attendees had captured on sticky notes. Content analysis was used to analyse this data following the conference as a means to summarise these contributions for publication.

The NGT process was facilitated as follows:

1. Silent generation of ideas: the question, "what is needed to make quality hand therapy happen in the South African public sector?" was agreed upon by the group as the NGT focus question. Stakeholders wrote their ideas on cards.
2. Sharing of ideas in a round robin: using a round-robin technique, each stakeholder shared an idea until all the ideas were exhausted.
3. Discussion of ideas: Each idea was discussed in order to ensure clarity of understanding. The group at this stage also started clustering similar ideas together and naming these categories. These category names were refined as new ideas were added. All ideas were sorted into at least one category. Some ideas were placed into more than one category if stakeholders felt that this was necessary.
4. Ranking of ideas: *Mentimeter*[295] was used for each stakeholder to rank their perception of the importance of each category.

The ideas within each of the categories required sorting to remove duplicates or combine similar items. It was not possible to do this within the in-person meeting. The group, therefore decided that the researcher (first author) would sort all the ideas in each category, present them to stakeholders for checking, and then facilitate the final online ranking process.

The researcher presented a refined list of ideas for each category to stakeholders to check that sorting had been conducted accurately. The finalised list of ideas was transferred to *Google Forms* for ranking. Stakeholders were orientated to the *Google Forms* questionnaire using a short video compiled by the researcher. They were asked to rank the categories in order of importance (as had been performed in the consensus development meeting) but this time to focus the ranking more specifically on *what is required for the support and development of generalist occupational therapists delivering hand-injury care in the South African public sector*. In order to capture the relative importance that stakeholders attributed to each item, constant sum questions were used within the *Google Forms* questionnaire. This type of question gave stakeholders 100 points to allocate across the answer options. If they believed, for example, that all ten categories in an answer were of equal importance, they could allocate 10 points to 10 categories. If they believed one category to be substantially more important, they could choose to allocate 60 points to this category and 20 points to two other less-important categories. The sum of the allocated points for each question had to total 100.

Each of the categories was presented in the questionnaire as a separate question listing each of the ideas within the category. Irrespective of the number of ideas within each category, the constant-sum style question required that participants allocate 100 points across the items. Data files are available upon request from the first author.

For each question, the average number of points allocated by stakeholders to each item was calculated and expressed as a % (total number of points allocated for item/14 stakeholders x 100).

Trustworthiness

The scientific data presented at the conference impacts on the validity of the final research output[153]. Therefore, invitations to submit abstracts were circulated widely and the purpose of the conference was clearly articulated through the infographic video. Submitted abstracts underwent peer review evaluating clarity (*is the abstract comprehensible and well-presented?*), structure (*is the abstract well-structured?*), clarity of aim/purpose, background (*is it clear what the study did and why?*), clarity of method, level of evidence, and relevance to the purpose of the conference. Although the focus was on scientific work, non-empirical work was supported by the provision of an abstract guide and the opportunity to revise the abstract based on feedback from the reviewer.

Participant selection is also essential in considering CDC trustworthiness[153,155]. Consensus development panel members should be unbiased; thus, it is recommended that they be "knowledgeable about the general topic under consideration, but must not have published or have publicly stated opinion on the topic"[154(p.ii).] This criterion was applied to stakeholder selection. Potential stakeholders were also presented to the study's co-authors to identify sources of bias and ensure inadequate representation of stakeholder groups.

The manner in which the consensus development interaction is structured and the 'method of synthesising judgements'[155(p.236)] affects research output and its validity. The NGT discussions were recorded in case further clarity was needed after the process was completed. The ideas generated by the panel were systematically sorted and presented back to stakeholders for checking prior to the final ranking process in order to strengthen the validity of the statements generated for consensus testing. The online platforms used for ranking allowed for consensus to be developed anonymously[296], thereby avoiding the impact of more dominant panel members on individual decisions, thereby minimising bias.

To further strengthen the credibility of the findings, structural coherence[234] was pursued through detailed, transparent reporting of all the study processes.

Ethical permissions

Ethical clearance for the study was obtained from the Human Research Ethics Committee of the University of the Witwatersrand (M200235). All stakeholders provided written consent to

participate. They also consented to their names being used in the publication of results to acknowledge their contribution to the co-construction of results.

9.4.4 Results

Twenty-eight (n=28) presentations were included in the conference programme (see Appendix I). These included four presentations (S1.4, S1.7, S4.5, and S4.7) that were part of the first author's PhD project that did not go through the peer review process but were reviewed by the three co-authors. One further presentation (S4.1) was an invited speaker whose contribution was requested based on her expertise as a hand therapy educator and extensive work towards hand therapy development in South Africa.

The abstracts were categorised according to content into four sessions. The session themes were: 1. Experiences and practice realities; 2. Patient perspectives; 3. Assessment and treatment; and 4. Strategies for support and development.

Audience impressions of the evidence presented, shared via *Zoom* chat and sticky notes that underwent content analysis, are summarised in Table 9.3. The most frequently shared comments spoke to the need for mentorship, communities of practice ,strengthened occupational therapy networks (n=18) and the need for accessible information and learning resources (n=15). The need for competency within professional attitudes and soft skills was also commonly highlighted (n=15).

Table 9.3: Content of conference audience impressions

Category	Frequency (n-value)	Conference sessions	*Related to stakeholder categories*
Mentorship, communities of practice & occupational therapy networks	n=18	1,2,4	Supervision & support
Accessible information and learning resources	n=15	1-4	Resources
Therapist (including student therapist) attitude & soft skills	n=14	2,4	Professional attitudes, behaviours & dispositions
Undergraduate training	n=9	1-4	Education & training
Physical resources	n=8	1	Resources
Referrals and multi-disciplinary communication	n=5	1	Effective referral & care pathways
Postgraduate education and continuous professional development	n=4	2,4	Education & training
Occupation-based treatment	n=4	2,4	Professional knowledge & skill
Therapist competencies	n=4	3,4	Professional knowledge & skill
Managing wounds, sepsis & stiffness	n=3	3	Professional knowledge & skill

Including psychosocial components in intervention	n=3	2	Professional knowledge & skill
Patient education, adherence & feedback	n=3	2	Professional knowledge & skill
Home programmes	n=2	1	Resources
Family training	n=2	2	Professional knowledge & skill
Outcome measurement	n=2	3	Professional knowledge & skill
Innovative treatment practices	n=2	4	Professional knowledge & skill
Multidisciplinary approach	n=2	4	Intra- and interdisciplinary action & cohesion
Intersectoral collaboration	n=2	4	Intersectoral systems approach
Task sharing	n=1	1	Intra- and interdisciplinary action & cohesion
Government policies	n=1	2	Policy, leadership & governance

Ideas generated and discussed during the consensus development process totalled 179. These ideas were discussed and sorted by the group into ten categories, and the categories were ranked by the 14 stakeholders. The results of this ranking process, based on the question: '*What is needed to make quality hand therapy happen in the public sector?*' is illustrated in the *Mentimeter* graphic below (see Figure 9.1). *Policy, leadership and governance* were ranked as the most important, followed by *education and training*, *professional knowledge and skills*, *supervision and support, and resources.*

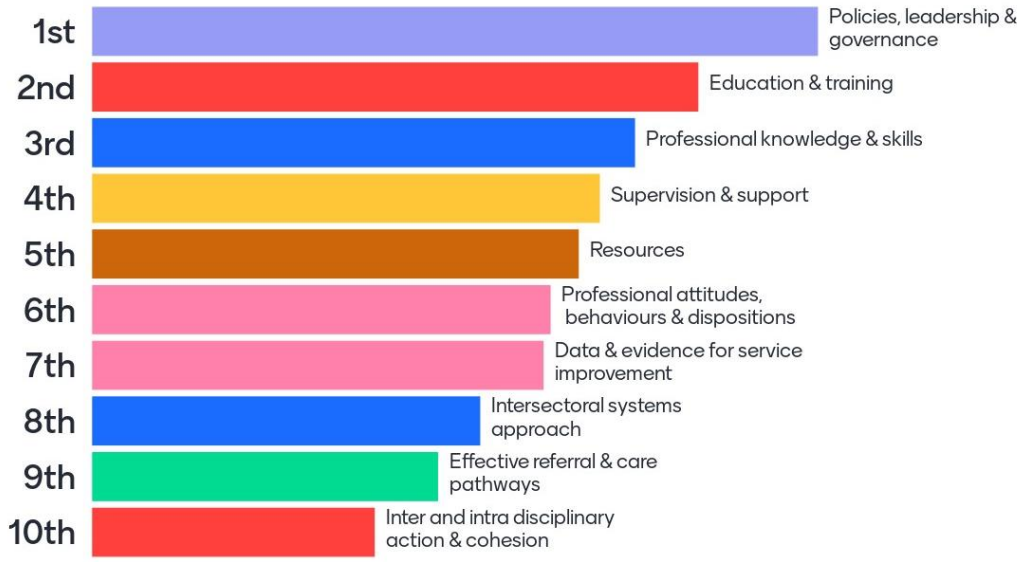


Figure 9.1: Ranking by stakeholders (n=14) of the 10 categories of ideas generated from question 1 (*What is needed to make quality hand therapy happen in the South African public sector?)* (Graphic: *https://www.mentimeter.com)*

The 179 ideas (shared in the round-robin) within each of the 10 categories were sorted to remove duplicates and consolidate similar ideas. Stakeholders then re-ranked the ten

categories in response to the nuanced question, *What is needed for the support and development of generalist occupational therapists delivering hand-injury care in the public sector?* Results of this ranking are illustrated in Figure 9.2 and demonstrate a slightly different prioritisation with *supervision and support* and *resources* being prioritised. Colours auto-generated by *Mentimeter* are used to enable easy comparison.

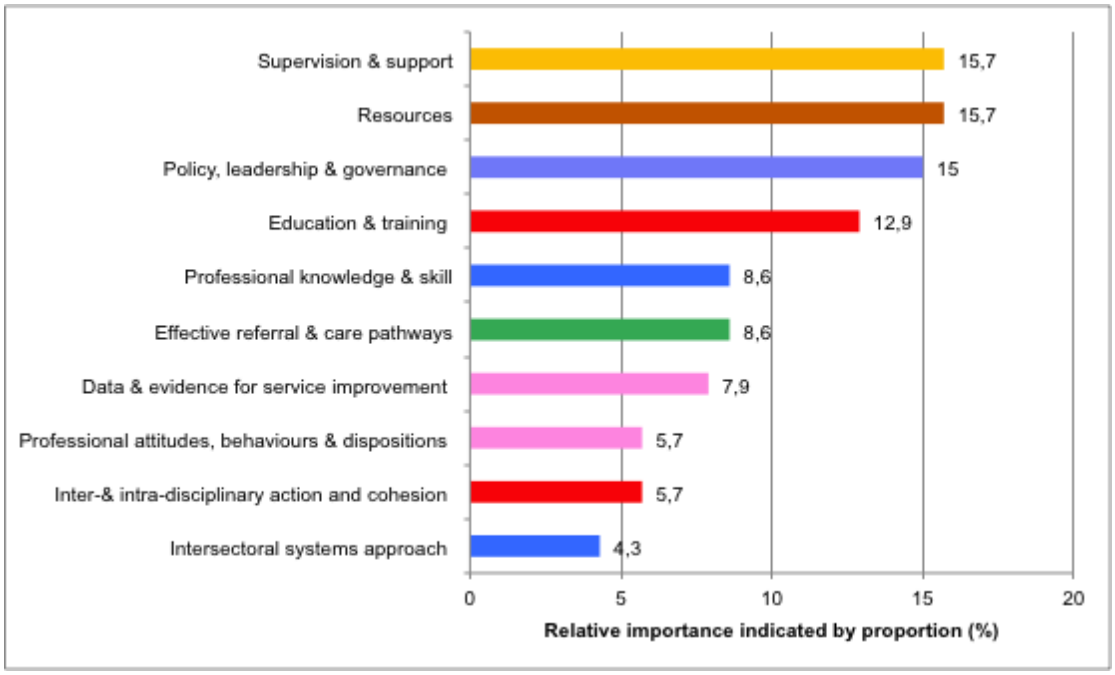


Figure 9.2: Ranking by stakeholders (n=14) of the 10 categories of actions generated from question 2 (*What is needed for the support and development of generalist occupational therapists delivering hand-injury care in the public sector?)*

All stakeholders (n=14) ranked the list of statements within each of the ten categories. Ideas that pertained to undergraduate education and those relevant to postgraduate education were ranked as two separate lists. The priority actions identified within each category are captured in Table 9.4. The top two actions are included except where more than two items received the same ranking. For the *education and training* category, the top undergraduate and top postgraduate recommendations has been included. The ranking of all statements for all ten categories may be viewed in Appendix J.

Table 9.4: Priority ideas identified within the ten categories of action

1. Supervision and support	Ranked %
Communities of practice, mentorship, courses, seminars, discussions to increase competence (from unconscious incompetence)	16,43%
Establish effective mentorship programmes/opportunities	14,29%
2. Resources	**Ranked %**

Open access, application-based repository of multidisciplinary information and resources (clinical guidelines, information on conditions, home programmes etc.)	12,86%
Clinical guidelines (reviewed every few years) for rural-based practitioners developed by expert practitioners with rural based experience and global south experience	11,43%
3. Policy, leadership and governance	Ranked %
Increase access to therapy for patients (decentralising services to take 'take therapy to the user').	10,71%
Improve access to transport for patients to attend follow up	10,71%
Provision of assessment and treatment tools and materials	10,71%
4. Education and training	Ranked %
Undergraduate: Inclusion of hand therapy fieldwork & practical/clinical learning opportunities within public and/or private sector)	19,29%
Postgraduate: Develop specialised hand therapy modules (for example lymphedema management, wound care, splinting, management of the stiff hand, management of sepsis)	10,71%
5. Professional knowledge and skill	Ranked %
Develop competence in a problem-solving approach: sound clinical reasoning, built on knowledge of basic sciences (anatomy, physiology & pathology, knowledge of the patient, sound assessment and basic treatment principles).	20,00%
Develop competence in holistic view and assessment of the client and their environment (including support structures, financial implications, burden of care etc.).	9,29%
6. Effective referral and care pathways	Ranked %
Strengthen multidisciplinary referral routes & communication channels across levels of care within, and beyond, service clusters, fostering a sense of community and cohesion within each cluster	28,57%
Implementing standardized pro-forma referral document including all information necessary for case discussion, standardized assessment forms etc.	27,14%
7.Data and evidence for service improvement	Ranked %
Collect quality data on the burden of disease and outcomes	16,43%
Communicate evidence/research findings to the right audience, in the right way (format and language), on the most appropriate platform	10,00%
Collect comparable (uniform) data across facilities and enable appropriate access to data or service improvement	10,00%
Use statistics to establish local burden of disease to inform content of continuous professional development courses for service clusters	10,00%
8. Professional attitudes, behaviours & dispositions	Ranked %
Lead by example: be open to teaching during (patient-contact) sessions, facilitate and nurture passion for hand therapy by what you do as a supervisor and how you do it	11,43%
Be client-centred: engage with the client about more than just the clinical aspects	11,43%
Facilitate active patient participation & understanding of their role in recovery, utilising opportunities in therapy for counselling, teaching and learning, provision of work letters	11,43%
9. Inter- and intra-disciplinary action and cohesion	Ranked %
Develop cohesive multidisciplinary teams orientated towards patient outcomes/goals and characterised by shared power, mutual respect and regard for each others' contribution	18,57%
Improve communication between surgeons and therapists through effective modes eg. applications	15,00%
10. Intersectoral systems approach	Ranked %
Develop decentralised, balanced services across all levels of care	15,71%
Improve surgical outreach services to rural areas	13,57%

9.4.5 Discussion

In response to the need for universal hand therapy coverage, this study sought to identify contextually responsive strategies for the support and development of generalist OTs, the 'frontline workers' typically responsible for delivering hand therapy within the South African public health sector. Stakeholders, through a facilitated nominal group technique (NGT), generated ten areas for action and proposed and prioritised strategies within each area. Prior to the NGT, stakeholders reviewed impressions of the evidence presented at the conference shared by conference attendees. This section will commence with a discussion of these

impressions. The discussion will then focus on the ten areas for action that have been grouped as actions are *strategic, organizational, operational and educational (*See Figure 9.3). It must be recognized that significant overlap and linking between action areas were noted in the data. The content within *policy, leadership and governance* (strategic priorities) is strongly linked to the other action areas. For this reason, the operational, organizational and educational priorities are conceptualised in Figure 9.3 as being positioned within the strategic priorities.

Figure 9.3: Ten areas for action conceptualised as educational, operations and organizational priorities positioned within strategic priorities (illustrated using www.presentationgo.com)

Consensus development conference: audience impressions

When audience impressions were sorted according to the ten categories identified by stakeholders (see the final column of Table 9.3), a strong focus on the need for *resources ,support and supervision* was noted. Additionally, frequent mention of *professional knowledge and skill* as well as professional attitudes, behaviours, and dispositions demonstrated participants' perceptions of the competencies required by generalist OTs to deliver contextually responsive hand therapy. This, along with comments related to *education and training,* speaks to the importance of appropriate undergraduate and postgraduate education for generalist therapists to develop and maintain their competence for practice. In contrast to stakeholder priorities, the audience contributed relatively few comments that spoke to service and system-level factors of generalist therapists' practice (action areas 6,7,9 and 10 in Table 9.3).

The majority of conference participants were OTs providing hand therapy in different contexts. The decision to include audience participation in generating data was built on the assumption that the inclusion of their views provided the opportunity to broaden the contextual responsiveness of the data collected and to enhance the validity of data. The fact that both similarity and difference can be seen in conference participant and stakeholder data suggests that stakeholders considered conference participant views but were not overly influenced by them.

The comments shared by online participants in the *Zoom chat* were not printed and reviewed by stakeholders prior to the NGT process. Limited literature could be found that spoke specifically to audience involvement in CDC processes[292]. However, knowledge of co-production principles[297] suggests that there may be room to critically consider audience perspectives in CDC processes when appropriate to the topic under investigation.

Priorities for Sustainable Hand Therapy Development

Strategic priorities

Policy, leadership, and governance, conceptualised in this discussion as a strategic priority, is ranked as the most important areas for action in response to the first iteration of the NGT guiding question (question 1). Question 1 spoke broadly to the provision of quality hand therapy in the public sector. Stakeholders' high prioritisation of *policy, leadership, and governance suggests the need for strategic planning and action to strengthen the system and service*. Leadership and governance are considered to be one of the six building blocks of health systems[57]. Effective leadership and governance in health systems ensure both the existence of strategic policies and their effective implementation through oversight, regulation, accountability, system design and coalition-building[298].

The World Health Organisation's 2030 call for action identifies ten activities to address unmet needs for rehabilitation. All of these actions either explicitly or implicitly relate to policy, leadership and governance[57]. Effective policy, leadership, and governance are arguably

foundational to the strategic and sustainable development of all of the other nine action areas prioritised by stakeholders in this study.

A lack of alignment between policy and practice within OT in South Africa has been established[299] and is another reason to prioritise *policy, leadership and governance*. It is recommended that the policy-practice gap should be addressed at a policy and systems level in order to achieve equitable and sustainable rehabilitation services[163]. Global[298] and local[300] investment in leadership and governance capacity strengthening further affirms the importance of these functions to improved health systems.

What remains to consider is *who* should be involved in the policy, leadership, and governance interventions identified by stakeholders and *what* needs to happen. The World Health Organisation identifies the need for this to happen at a national, sub-national and global level[57]. Although the government is primarily responsible, stakeholders can assist [57], suggesting a role for hand therapy and hand surgery societies. Recommendations to strengthen rehabilitation leadership and governance include strengthening human and financial capacity for rehabilitation within the Ministry of Health and developing ,transparent governance and accountability. Building technical skills and capacity in leadership and rehabilitation is essential, along with establishing rehabilitation partnerships and networks. Developing rehabilitation champions and facilitating inter-country exchanges are also recommended[57]. Because rehabilitation is cross-sectoral, it is necessary for leadership and governance capacity strengthening to consider other government departments (e.g., labour, social development) as well as non-specialist workers, including patients, community groups, and community-based rehabilitation workers[192].

If hand therapy and hand surgery societies are to align themselves as stakeholders for strengthening policy, leadership, and governance, then action is needed. Firstly, universal access to hand injury care, as a natural application of UHC[57], needs to be integrated into the strategic plans of international and national societies. We must acknowledge that poor access to hand therapy and surgery services is not just an LMIC problem[301,302,54,303], and a vision for extending equitable access to services within countries needs to accompany global efforts. That said, the worldwide hand therapy and hand surgery community are relatively small. In order to harness resources synergistically, a global perspective rather than a local perspective

should be adopted in line with WHO guidelines for rehabilitation strengthening, networks and partnerships across low- middle- and high-income countries[57] should to be leveraged. Mutually beneficial partnerships that are shaped by contemporary evidence for the ethical effectiveness of these collaborations should be nurtured[304].

Academic meetings can be leveraged to nurture these orientations. The 2025 Triennial Hand Surgery and Hand Therapy Congress will be held in Washington, DC. This Congress is an opportunity to include universal hand-care coverage as a conference theme and intentionally support participation from all global regions, especially LMICs. The annual South African Hand Surgery Conference also offers an opportunity for ongoing discourse around access to handinjury care. In addition, the executive committees that steer hand societies might consider adding a hand therapy/surgery in health systems representative to their executive to ensure that strengthening policy, leadership, and governance for hand care remains on society agendas. Societies may also consider instituting awards (where these do not yet exist) to strengthen hand care in health systems.

Educational priorities

Thinking strategically is essential for pursuing universal access to hand therapy. Ensuring that the workforce providing this care is competent is also critical. *Education and training*, along with *professional knowledge and skill,* were ranked as the second and third priority areas for action for question 1. These, along with priority six, *professional attitudes, behaviours and dispositions*, speak to the development and maintenance of therapist competence, a fundamental focus for the capacity strengthening of generalist therapists. The highest-ranked ideas within *professional knowledge and skill* highlight the importance of a bio-occupational approach: competent attention to the biological needs of patients in terms of the structures and functions of the hand while simultaneously embedding this care within an occupational view of the client: client-centred, holistic, and responsive to the patients environment and participation needs[305]. Stakeholders identified the importance of both undergraduate and postgraduate education in ensuring professional competence. A further enabler for developing and maintaining competence was identified under resources: *Open access, application-based repository of multidisciplinary information and resources (clinical guidelines,*

information on conditions, home programmes.). The opportunity to develop these resources is discussed as an operational priority in the following section.

Operational priorities

Supervision ,support, and *resources* were highly prioritised in both iterations of the question that guided the consensus process. Resource needs included physical resources for intervention, home programs, and access to evidence. However, the need for accessible, relevant, evidence-based clinical guidance ranked as the most important. This need is not unique to generalist therapists, and studies have reported strong user -satisfaction with app-based clinical guidance[306]. Co-design of applications with clinicians is needed, and recommendations to enhance usability and maintain the currency of app-based clinical guidance should be considered[307]. Contemporary evidence to systematically guide the development of app-based guidelines for hand therapy should be considered[308].

Many generalist therapists have previously reported not having access to up-to-date evidence to guide their practice[67], explaining the need identified by stakeholders for open-access clinical guidelines. Specific characteristics of rural practice[12,15] also underscore the need for guidelines to be relevant to rural practice. Though not overtly noted by stakeholders in this study, limited network access[67] necessitated that guidelines should also be downloadable to enable offline use (cf. Study 2B, Chapter 8).

Highly ranked priorities within the area of *supervision and support* demonstrated a similar need for knowledge to guide practice but focused on this being developed within relationships with clinical colleagues. Numerous formats for this to occur may be considered, but strong evidence for the learning framework used by Project Echo is an example that should be considered[262]. Project Echo, developed in another Global South context, connect clinician peers and specialists in a virtual community that facilitates guidance, feedback and support towards implementing contextualised best practices in participants' clinical settings. This model holds promise for addressing aspects of both educational and operational priorities identified in this study.

Organizational priorities

In addition to educational and operational needs, four of the ten areas for action identified by stakeholders address changes required at an organizational level. There is strong agreement in the literature for that *data and evidence for service improvement* as a priority. Hand injuries cause a substantial burden of disability in LMICs, yet evidence to quantify this burden is lacking[21]. High quality, heterogeneous data on the epidemiology, management, burden[21] and patient-centred[236], participatory[285] outcomes of hand injuries is required. Local, regional and international partnerships may provide a useful means of knowledge and support for hand injury services to establish and refine simple, evidence-informed systems for the collection of data. In South Africa and many other countries, the health and economic burden of hand injuries has not been quantified, giving service providers little motivation for increased investment in the development of hand-injury care services.

Despite the recent release of a policy to guide referrals in the South African health system[244], *effective referral and care pathways* for hand-injury care continue to be challenged by diverse and dynamic problems within service clusters and sub-districts[288] (cf. Study 2B, Chapter 8). Gaps in hand-injury referral and care pathways are not limited to LMICs[309], but distinct differences between referral systems in developed and developing countries exist: the provision of healthcare in developed countries is often insurance-driven and follows well-defined referral pathways. In developing countries, healthcare is largely state-funded and the referral system framework is weak and evolves slowly[310]. These context differences and the diversity of factors that limit referral system functioning[311] suggest a context-specific, problem-solving approach to strengthening referral and care pathways.

Stakeholders identifying the need for an *intersectoral systems approach* acknowledge the magnitude and complexity of the need for rehabilitation. The burden of musculoskeletal conditions is increasing, along with the need for surgical care[312] and rehabilitation[313]. Rehabilitation works to improve the function and participation of individuals and communities and, by necessity, works across sectors to achieve this[243]. Action to strengthen rehabilitation, therefore must work across sectors[285]. While stakeholders' recommendations affirmed the need to work across sectors, the highest ranked actions related specifically to the health system: the decentralisation of services and surgical outreach. These priorities are supported by local evidence; a study that sought to map barriers to equitable surgical care in

South Africa highlighted both a lack of decentralization and a lack of surgical outreach as key barriers to care[314].

Attempts to decentralize services are being made. A recent study reported the substantial impact achieved in decentralizing orthopaedic services in one South African city[315]. However, challenges to this decentralization require attention. Burgeoning medical and surgical services at lower levels of care (cf. Study 2B, Chapter 8 needs to be accompanied by sufficient rehabilitation capacity in order for decentralization to translate to improved functional outcomes for patients[285], and for service developments to be sustainable.

Lastly, stakeholders identified the need for actions to strengthen *inter and intradisciplinary action and cohesion.* Literature concurs with the importance of good communication between patient, therapist and surgeon[316], and a multi-disciplinary approach which places the patient and patient outcomes at the centre of care processes[317].

Competing priorities for action: where to focus?

The first question that guided stakeholder prioritisation was "*what is needed to make quality hand therapy happen in the public sector?"* while the second question focussed on the support and development needs of 'frontline workers' delivering hand therapy in the public sector. The results showed an interesting difference in prioritisation shown in Table 9.6: the first question's results favoured *strategic priorities* while the second question's results prioritized the *operational* imperatives of resources, supervision and support.

Table 9.5: Changes in ranking of ten priority action areas between Question 1 and Question 2

Question guiding stakeholder ranking		
1. What is needed to make quality hand therapy happen in the public sector?		*2. What is needed for the support and development of generalist occupational therapists delivering hand-injury care?*
Ranking for first iteration of question (question 1)	Change in ranking from question 1 to 2	Ranking for second iteration of question (question 2)
1.1 Policy, leadership & governance	↓	2.1 Supervision & support
1.2 Education & training	↓	2.2 Resources
1.3 Professional knowledge & skills	↓	2.3 Policy, leadership & governance
1.4 Supervision & support	↑	2.4 Education & training
1.5 Resources	↑	2.5 Professional knowledge & skills
1.6 Professional attitudes, behaviours & dispositions	↓	2.6 Effective referral & care pathways
1.7 Data and evidence for service improvement	-	2.7 Data & evidence for service improvement
1.8 Intersectoral Systems Approach	↓	2.8 Professional attitudes, behaviours & dispositions
1.9 Effective referral & care pathways	↑	2.9 Inter and intradisciplinary action & cohesion
1.10 Inter and intradisciplinary action & cohesion	↑	2.10 Intersectoral Systems Approach

Viewed through a universal health coverage lens, Hagander[318] contends 'there is no silver bullet'[318:1877] and a multifaceted approach that avoids unnecessary trade-offs of short-term versus long-term solutions or operational needs versus strategic health system strengthening. Similarly, Dayal argues that the "capacity to deliver effective, efficient, equitable and sustainable rehabilitation services requires a paradigm shift to occur concurrently at the policy and systems level, service level and organizational level" and that without this, efforts will have "little chance of surviving"[163:3].

Strengths and Limitations

To our knowledge, this is the first study to consider the role and capacity strengthening of the generalist OT in response to contemporary calls for universal access to hand-injury care. Evidence validates the importance of the ten areas for action identified, which may be considered for adaptation to other contexts. Where contextual differences permit the direct translation of the results, this paper provides a dense description of the research methods that will allow replication of the study in other settings.

Despite attempts to consider a broad range of perspectives and respond to evidence and contextual realities, the results of this study omit some key considerations. The role of the physiotherapist in the delivery of hand therapy is not reflected, despite one of the studies presented at the CDC identifying the need to better leverage the role of the physiotherapist for hand therapy in South Africa (cf. Study 2B, Chapter 8). In addition, the role of mid-level workers is not mentioned, which reflects a lack of sensitivity to the role and needs of this cadre of healthcare workers in the hand therapy care pathway[319,320]. Considering their role is essential against the backdrop of therapist shortage[130]s, the therapist-to-population ratio[130], transdisciplinary practices and task shifting, promoted by the World Health Organisation and endorsed by the South African government[321].

The results of the consensus process also do not overtly identify the importance of international networks and partnerships for the strengthening of rehabilitation services, despite this being recommended by the World Health Organisation for the development of rehabilitation services[57]. This may be because established services and substantial expertise

for hand therapy exist within the South African private health sector, reducing the need to draw on international resources. However, the mutual enrichment that international partnerships allow suggests that this avenue should not be ignored. The Global North has much to glean from innovative primary care solutions in the South, and South-South partnerships hold promise for 'cross-pollination' and mutual strengthening.

Finally, the data generated by the consensus development process was dense. The detailed recommendations for action within each of the ten categories (Appendix J) could not be adequately considered within the scope of this article and warrants deeper discussion in future publications.

9.4.6 Conclusion

This study set out to identify contextually responsive support and development strategies for generalist OTs delivering hand therapy in South Africa in response to the need for universal access to hand-injury care. A hybrid consensus development conference used a nominal group technique to identify and rank priority areas for action identified by fourteen stakeholders to strengthen the capacity of 'frontline' hand therapy workers. The priority areas identified were: *Support and supervision; resources; policy, leadership and governance; education and training; professional knowledge and skill; effective referral and care pathways; data and evidence for service improvement; professional attitudes, behaviours and dispositions; inter- and intra-disciplinary action and cohesion;* and an *intersectoral systems approach.* Evidence suggests that the applicability of these ten priority areas for action extends beyond South Africa or other LMICs and may be useful to guide universal hand therapy coverage efforts in all contexts where equitable access to hand therapy has not yet been achieved. To "advance the hand health of the world"[322(p.5)] was described in early 2023 by the IFSSH President, Dr Dan Nagle, as wonderfully "noble". It is indeed noble, but is it not also an ethical professional imperative?[323]. South Africa's rehabilitation policy calls for 'solidarity in purpose' in pursuing *rehabilitation for all.* The call should not be received as burdensome or 'a charity for some', but rather as an invitation and "a privilege for all"[162].

CHAPTER TEN: Integrated Discussion

10.1 Introduction

This PhD study set out to describe how the support and development needs of generalist occupational therapists delivering hand-injury care within the South African public health sector can be met in a contextually responsive manner. This integrated discussion chapter seeks to synthesise, analyse and interpret[324] the results and recommendations generated by each of the PhD sub-studies and evidence communicated in each of the seven manuscripts produced by the study. Essentially, this Chapter articulates and reiterates *what needs to be responded to*. Firstly, a descriptive overview of each of the seven manuscripts is provided (10.2). The *instrumental* case study design used in Study 2 studied the experiences of generalist occupational therapists in order to extrapolate interventions for the support and development of these therapists. Therefore, the section that follows (10.3) discusses participants' experience – the qualitative phenomenon of *delivering hand-injury care as a generalist in the public health sector*. Responding to this data and evidence generated in Studies 1 and 3, the final section (10.4) integrates the evidence on recommended interventions and both proposes and discusses eleven guidelines for strengthening the capacity of generalist occupational therapists to deliver hand-injury care in the South African public sector. A summary of the integrated discussion concludes the chapter (10.5).

10.2 Overview of Manuscripts

The overarching question that this project sought to answer was: *How can the support and development needs of generalist occupational therapists delivering hand-injury care within the South African public health sector be met in a contextually responsive manner?* Three separate studies, illustrated on the left side of the conceptual map below (see Figure 10.1), were conducted to answer this question and to achieve the aim of the study: to develop guidelines for the support and development of generalist occupational therapists for hand-injury care. The conceptual considerations and evidence communicated in each of the seven manuscripts of the thesis are summarised below.

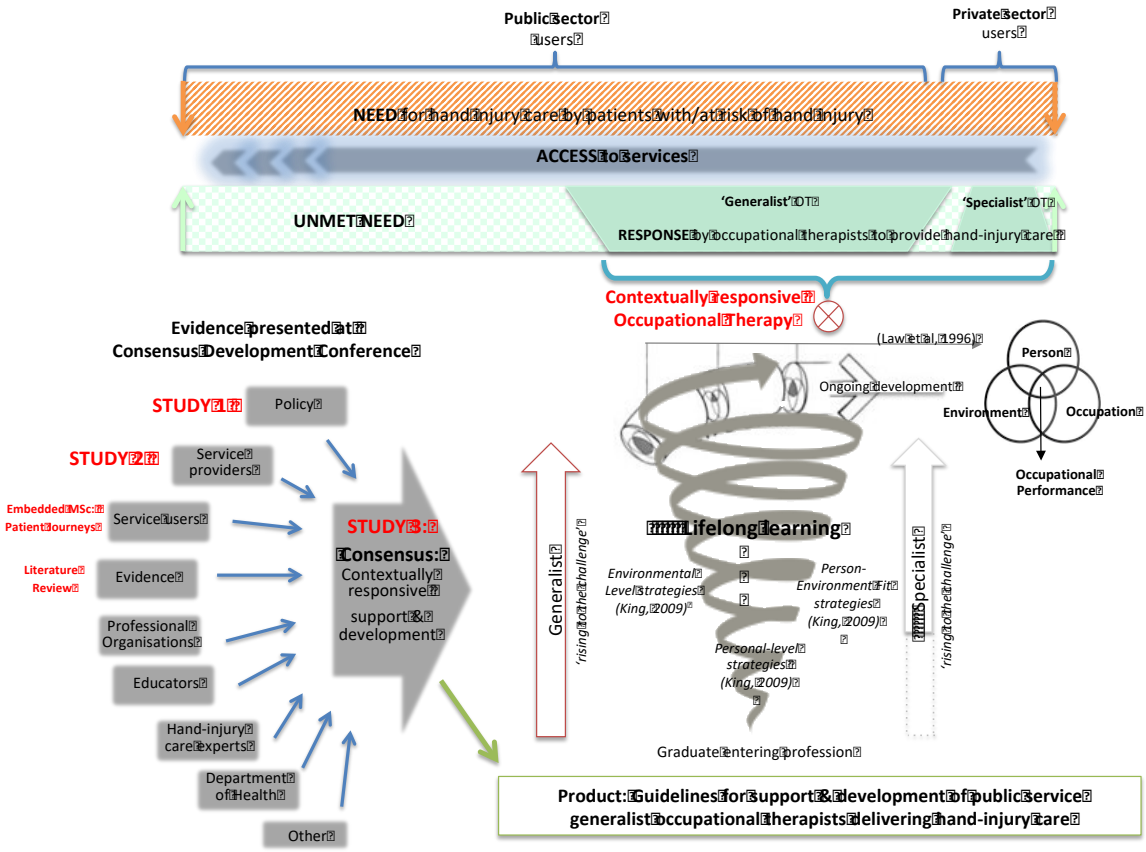


Figure 10.1: Conceptual map of the study

10.2.1 Manuscript 1: Becoming Contextually Responsive: Taking Hold of a Shared Vision for our Profession (Chapter 3)

Contextual responsiveness is a key element of this project's conceptual framework (see Figure 10.1). The concept begs two questions: *What does it mean to be responsive?* And *what context are we responding to*? A call for contributions for a special edition of the South African Journal of Occupational Therapy in 2021 provided an opportunity to interrogate these concepts for this project but also to offer a collegial voice to advocate for a *collective pursuit* of contextual responsiveness by clinicians and scholars in South Africa. The commentary traces occupational therapy's historical and current positioning in South Africa, conveying the unrealised potentiality of the profession and the urgency to engage with "one of the triple-strands of the profession's DNA: the context and environment"[148(p.54)] for greater impact. Beyond the typical aspects highlighted by occupational therapy theory (physical, social, cultural, institutional, temporal and economic), the geopolitical, social and historical contexts are highlighted, and the spiritual environment is proposed as potentially responsive conceptualisation of the environment in a Global South context. Frameworks proposed to assist the occupational therapy profession to 'see' these factors that exert

invisible forces on participation in occupation are explored, while the need to critique the epistemological and ideological foundations of these frameworks[325] is highlighted. 'Responsiveness' is unpacked as a growing sensitivity by the profession to the power relationships that are exerted through and exerted on occupational participation[326]. This is cultivated through critical reflection, exposure to and immersion in diverse contexts, and growing into participatory approaches to therapy. Perceiving the impact of the environment thus fosters responsiveness, which in turn perpetuates a greater perception of the environment.

Critiquing the professional distance between clinicians and academics in South Africa, the commentary proposes mechanisms for clinicians (the profession's "feet on the ground" [148(p.54)] and the academics (the profession's "head in the clouds" [148(p.54)]) to pursue contextual responsiveness together for realising the potential of the profession's contribution to development in South Africa. Developing our ability to intervene at an environmental level and using communities of practice as critical reflexivity hubs are recommended to facilitate a "productive collision of reality and possibility"[148(p.54)]. Assuming "a critical posture and humble disposition", caution to not allow a focus on productivity to envelop our pursuit of occupational justice, seeking to understand each other's lived experiences as scholars and practitioners, befriending discomfort, and recognising all members of the occupational therapy profession as "legitimate carriers of knowledge"[147 (p.59),325] are outlined as unifying dispositions for the profession.

The commentary invites the hand therapy community, concerned with delivering hand-injury care in the public sector, to commit to critical reflexivity: an invitation to interrogate, amongst other things, the impact of the historical biomedical orientation of the practice area and to critically concern ourselves with what a context-authentic occupation-based approach should look like in each of our practice settings. The commentary calls us to consider how neoliberalism has potentially shaped hand therapy service delivery in South Africa and how a greater attendance to justice may shift where we bear our weight and exert our impact as a hand therapy community. The article implies a call to synergy: uniting the contributions of scholars and clinicians in hand-injury care to leverage our diverse perspectives, creativities and potentialities to champion the earning tool[18] of the human body, to pursue occupational

justice, and to collaborate for the participation and integration of *all* those with, and at risk of, hand injury.

10.2.2 Manuscript 2: Developing Policy-informed Principles for Rehabilitation Using a Model of Care Framework: a Hand Therapy Example in a Global South Context (Chapter 4)

Responding to the policy context is an essential aspect of contextual responsiveness. It is necessary to understand what services should look like from a policy perspective in order to understand how generalist occupational therapists' work should be positioned. This understanding then enables support and development strategies to be positioned to appreciate the role that policy directs therapists to fulfil. This study, therefore aimed to develop policy-based principles for hand therapy services delivered by occupational therapists in South Africa. A descriptive qualitative approach was employed, and framework analysis[203], as a content analysis method, was undertaken.

Table 10.1 contains the eighteen generic principles that were generated from the study and the three categories in which these were organised. Arguably, each of the principles has implications for occupational therapy and hand therapy practice, learning and development, leadership and management, policy and research. However, the most pertinent areas of application for each principle are indicated in the table. Manuscript 1 proposes a working vision statement for hand therapy in South Africa, and the application of this proposed vision to capacity strengthening of generalist occupational therapists delivering hand-injury care is articulated in the final row of Table 10.1.

Table 10.1: Principles for hand therapy generated from an analysis of local and international policies (n=29)

Categories	Principles	Key Implications				
		Practice	Learning & development	Leadership & management	Policy	Research
The goal of rehabilitation	1. Full participation & inclusion	x				
The nature of rehabilitation	2. Quality patient-centred care	x				
	3. Equity & equality			x		
	4. Accessible services			x		
	5. Truly comprehensive care (service balance)			x		
	6. An occupational focus	x				
	7. Work interventions	x				
The enablers of rehabilitation	8. Intersectoral action for vital communities			x		
	9. Empowered clients and communities					
	10. A vital workforce		x	x		
	11. Resources (including assistive devices and	x		x		
	12. Infrastructure and equipment			x		
	13. Seamless services			x	x	
	14. Leadership and governance			x	x	
	15. Financing			x		
	16. Data for service improvement			x		
	17. Networks & partnerships			x		
	18. Responsive and anticipatory			x	x	

Application of proposed vision statement to capacity strengthening of generalist occupational therapists delivering hand-injury care is articulated as follows *(numbers in brackets denote principles from Table 10.1)*

In order to respond to policy, generalist occupational therapists should be supported to deliver services that contribute towards full participation and inclusion (1) of people with or at risk of hand injuries and conditions. Capacity strengthening should equip therapists to deliver quality, person-centred hand-injury care (2) positioned to affirm the equal worth of all citizens through equitable (3) and accessible services (4). Therapists should be supported in achieving a balance between prevention, promotion, cure, rehabilitation and palliation services (5). These services should include work interventions to support the right to work (6) and, participation in occupation should remain the therapists' chief concern and means of intervention (7). Achieving full participation and inclusion of people with or at risk of hand injuries necessitates the empowerment of clients and communities (8) and intersectoral action (9). A vital hand therapy workforce must be trained and maintained (10) and their work enabled by adequate resources (11), infrastructure and equipment (12), and an integrated, co-ordinated, multi-disciplinary approach (13). Strong leadership and governance (14), adequate financing (15), and the effective collection and use of data (16) will enable the support and development of therapists. Networks and partnerships should be leveraged (17) for service development and the hand therapy system should remain responsive and anticipatory (18) to the changes needs and demands of context for hand-injury care.

10.2.3 Manuscript 3: 'Surthriving' Hand Rehabilitation: Proposing Interventions to Support Novice Occupational Therapists Working in Underserved Contexts (Chapter 5)

Responding to the needs and experiences of service providers is another essential aspect of contextual responsiveness. It was, therefore, necessary to understand how generalist occupational therapists describe their experiences of delivering hand therapy in the South African public sector in order to identify their support and development needs. An instrumental qualitative case study design was suited to this research question. The case, or unit of analysis, was defined as *a public sector occupational therapist delivering hand-injury care in a generalist capacity*. These therapists may either be new graduates completing their year of compulsory Community Service prior to being able to register as independent practitioners in South Africa or generalist occupational therapists, who are independent practitioners who have completed their Community Service but choose to work in the state. For the purposes of this part (Study 2) of the overall study, treating hand-injured patients in a generalist capacity meant that therapists did not have a specific qualification in hand rehabilitation and/or were required to routinely treat patients within other areas of occupational therapy practice.

Two sub-studies were conducted within Study 2. Study 2A was undertaken with Community Service Occupational Therapists in 2021, and an online Community of Practice was used as a data collection platform. Three manuscripts were generated from this study (Manuscripts 3-5).

Manuscript 3 presents a thematic analysis of the experiences of nine Community Service occupational therapists. Reflexive thematic analysis generated three themes. The first theme, *Submerged: 'I had to drown a little'* describes the contextual features that characterised participants' experience. Pervasive poverty characterised patients' lives and participants' work. Working within a strained health system further characterised all participants' experiences to a greater or lesser extent, and the poor medical and surgical management of hand injuries added complexity to the work of hand rehabilitation. Participants were faced with a sense of insurmountable need related to the needs of patients and challenges within the health system. In addition, participants experienced their practice contexts as being 'different from what I know' and were challenged to engage with clients and communities across language and cultural differences.

The second theme, *Starting somewhere* captured the process that participants experience in delivering hand-injury care. It involved moving from a sense of having "no idea" to developing "some idea" of what to do with hand-injured patients. Participants' clinical reasoning was challenged by the contextual realities in which they practised and patients frequently presented with no formal diagnosis or unfamiliar diagnoses. Complicated presentations, infrequent follow-up appointments, and challenges to patient adherence made the guidance provided by protocols less useful in guiding participants' reasoning and actions. Additionally, participants perceived their equipping for hand-injury care to be sparse in terms of undergraduate preparation, supervision, experience, continuous professional development activities, and physical resources for assessment and treatment. Participants' hand-injury care journey also held a dimension of appreciating the value of occupational therapy for hand-injured patients.

Dynamics of surthrival, the third theme generated from analysis, expressed the dynamics that supported a strong response by participants to the demand for hand-injury care or features that limited this response. Participants' responses were propelled by demand, a sense of their own agency, and the presence of various learning supports. The absence or presence of resources and emotional support also influenced the sense of either *thriving* or *just surviving*. Having access to real-time support and being able to access expertise were salient catalysts for moving away from the latter to the former.

A list of proposed interventions to address the support and development needs evident in participants' experience was proposed by the PhD researcher and reviewed, edited, and ratified by participants (n=9) during member-checking interviews. Table 10.2 lists these interventions and indicates key implications for practice, learning and development, leadership and management, policy and/or research.

Table 10.2: Proposed support and development interventions generated by the PhD researcher and participants (n=9) in Study 2 A

Identified interventions	Key Implications				
	Practice	Learning & development	Leadership & management	Policy	Research
A. System / service-related interventions					
Systemic development		x	x	x	x
Occupational therapy human resourcing in other public sector departments			x	x	
Improvement in basic management of hand injuries/conditions			x	x	x
Strengthening human resources (for medical & surgical management)			x	x	
Strengthening referral systems			x		
Human resourcing of occupational therapists to reduce language discordance			x	x	
Interpreters			x	x	
Human resourcing			x	x	
Strengthening supervision capacity for responsive supervision		x	x		
Accessible (immediacy & proximity) support & supervision		x	x		
Access to expertise			x	x	
B. Learning opportunities to support competency					
Guidance & Feedback		x			
Support for the development of knowledge, skill & clinical reasoning		x			
Accessing appropriate evidence			x		
Management of acute and chronic conditions /injuries (e.g. burns , fractures, stroke)		x			
Reasoning around disability grant eligibility		x			
Supporting adherence		x			
Strengthening undergraduate curricula		x			
Practical undergraduate experiences		x			
Regular opportunities to develop knowledge & skill		x			
Strengthening resourcefulness, creativity & innovation		x			
Fostering enjoyable undergraduate hand therapy experiences		x			
Strengthening occupational focus in undergraduate hand therapy teaching		x			
Occupation-based hand therapy opportunities		x			
Understanding indigenous occupations & drawing them into therapy		x			
Supporting development of agency		x			
Supporting development of lifelong learning practices		x			
Resilience (including coping strategies, building/harnessing support networks)		x			
Strengthening undergraduate experiences		x			
Individual & group reflection		x			
Case discussion		x			
C. Physical resources					
Applications to assist with language learning and to support communication	x		x		
Appropriate guidelines for managing conditions	x		x		
Appropriate home programmes	x		x		
Mobile assessment and treatment resources	x		x		
Appropriate hand therapy resources	x		x		
Resources suitable for a diverse caseload including resources for occupation-based therapy	x		x		
Activity ideas	x				
Appropriate resources			x		
Appropriate courses		x			
D. Emotional support					
Preparation for CS to know what to expect			x		
Processing experiences: debriefing / sharing			x		
Supported reflection			x		

10.2.4 Manuscript 4: Virtual Communities of Practice for Novice Occupational Therapists: a Vehicle for Learning, Support and Professional Identity Strengthening? (Chapter 6)

This manuscript (part of Study 2A) reports on participants' experience of the virtual community of practice (VCoP) used as a data collection platform in Study 2A. A thematic analysis of participants' anonymous feedback generated three themes: *A versatile support* explained that participants felt helped and supported, were able to gain and share resources, and appreciated the immediacy of support enabled by the VCoP. *A vehicle for learning* captured participants' experience of the mutual learning that the platform enabled, a source for acquiring knowledge and skills, supporting reflection, developing clinical reasoning, and a means to access expertise and mentorship. 'Grounding', the final theme, spoke to the VCoP, supporting participants' occupational identity, reinforcing occupationally therapy values, and providing input relevant to their experiences and the contexts in which they were working. Although not overtly part of the findings, innovation proved to be a product of the CoP. Implications for practice, leadership and management and further research are communicated in this manuscript.

10.2.5 Manuscript 5: Hand Therapy On the Move: Taking Therapy to Harder-to-Reach Communities (Chapter 7)

Manuscript 5 (Study 2A) describes a practice innovation developed by the participants (n=9) and the researcher. The group identified a need for a portable hand therapy station that was responsive to local evidence and their practice realities. They undertook a systematic reflection of their practice experience and local articles and designed a hand therapy station that could be pulled on wheels or carried as a backpack. The presentation of the innovation at an international conference (June 2022) and local conference (September 2022) was well received and motivated the authors to share the innovation through publication in the practice forum of the Journal of Hand Therapy. Piloting the kit in two rural areas in South Africa provided positive feedback on its utility and provided recommendations for its refinement. Making the kit available on state tender for therapists to procure has been identified as a means of upscaling the project to support more therapists providing hand therapy and other basic occupational therapy services to rural and underserved communities. The practice of innovation, therefore, implies a key implication for leadership and management.

10.2.6 Manuscript 6: 'A Different Ball Game': Responsive Capacity Strengthening for Hand Rehabilitation in Resource-Constrained Contexts (Chapter 8)

The second sub-study (Study 2B) sought to understand the experiences ,support and development needs of six independent practitioners delivering hand-injury care in a generalist capacity in the public sector. The study design was the same as Study 2A, but data collection made use of field visits, in-depth interviews and field notes. Five themes were generated from cross-case analysis: Participants found hand-injury care both *stressful and satisfying*. As generalist practitioners managing diverse caseloads, they had to wear 'multiple hats' and were struck by the gravity of hand injuries and their impact on the lives of their clients. This demanded that participants keep their wits about them in order to deliver the best possible care. Hand therapy was daunting for participants and was often accompanied by a sense of uncertainty. However, participants appeared to shed their intimidation over time, working against a sense of inadequacy. *Learning journey*, the second theme, captured learning milestones of participants' hand therapy journey that were either enabling or restrictive. Key aspects of undergraduate preparation, the transition to practice, and the continuous learning journey were described. *Rising to the challenge* articulated various factors that enabled participants to meet the demand for hand therapy. Directing their learning, working within a work culture that values learning, being able to access expertise from those willing to assist, and receiving guidance and feedback to strengthen the development of clinical reasoning for hand therapy. *Traversing service and system change* captured the sense of each participant being challenged to work within a unique set of services within a broader system and the flux and change of these systems and services. Each work context had unique 'gaps and cracks', and one participant strongly advocated adopting a service orientation to intervention that considered care across the continuum and acted with cognisance of this broader service. The presence or absence of a cohesive team, as well as the availability of resources, was impactful. Finally, *Once upon a hand injury* tells part of patients' stories and their contexts, as well as the features of the healthcare context in which participants deliver care.

Again, considerations for capacity strengthening were extrapolated from the themes and presented to participants during member checking. These are listed in Table 10.3 below, with key implications for the occupational therapy profession, indicated.

Table 10.3: Proposed support and development interventions generated by the PhD researcher and participants (n=6) in Study 2B

B. Individual	Key Implications				
	Practice	Learning & development	Leadership & management	Policy	Research
Resilience: including managing anxiety, self-regulation, recruiting support, self-care, holding realistic expectations for self/respecting personal limitations, normalising feelings of uncertainty	x	x	x	x	x
Organisational skill: prioritization	x	x	x		
'Life-long foraging': identifying & prioritising own learning needs		x			
Reflection and reflexivity: including the development of cultural humility and an appreciation of indigenous occupations & patient experiences	x	x	x		x
Affirming & establishing the role of the specialist & the generalist: acknowledging strengths of generalists and specialists; managing expectations of 'specialists'	x		x		
Access to expertise for complex cases, guidance & feedback, support, ethical prioritization, and Group mentoring, *WhatsApp groups*, Communities of Practice	x	x	x		X
The development of supervisors & mentors (facilitate clinical reasoning)		x	x		
Strengthening the role of the physiotherapist			x		
Team cultures: Patient-centred learning and development	x	x	x		
Communication: Basic proficiency in local language & competence for working with an interpreter					
Adopt a service orientation & develop strategies within services	x		x		
Undergraduate (UG) Education • Solid theoretical foundation with opportunity to translate to practice (including skills) • Fieldwork opportunities • Nurture enjoyment & sense of efficacy • Facilitate engaged & active learning • Develop resilience (managing anxiety) • Integrating anatomy		x			
Postgraduate Education & continuous professional development (CPD) • Practical equipping, self-paced, relevant for rural, choice of modules • CPD accessible in terms of cost, pitch, and location		x			
B. Physical Resources					
Resource support for CPD (e.g. leave, finance, travel, accommodation)			x		
Hand Therapy resources and equipment	x		x		
*Home programme bank	x		x		
Principles-driven protocols/algorithms that include the absence of surgery	x		x		
Application-based clinical guidance tailored to context	x		x		X
Network access			x		
C. Service or system strengthening					
Strengthening of hand surgery services			x		
Procurement: Addressing procurement difficulties and leveraging the tender process			x		
Referral systems: situation-specific team problem-solving approach to referral intricacies			x		
Develop hand-injury prevention role			x		

Substantial areas of similarities in the findings and interventions proposed in study 2A and 2B are evident, as well as some key differences. These are discussed in the next section (Section 3).

2.7 Manuscript 7: Strengthening Capacity for Universal Basic Hand Therapy in South Africa: a Consensus Development Study (Chapter 9)

The final manuscript reports on Study 3 that sought to combine the evidence produced in Study 1 and 2 with the diverse perspectives of service users, other service providers, local and international scholars, educators and professional bodies. The aim of the study was to identify capacity strengthening strategies for generalist occupational therapists responsible for delivering hand therapy in the South African Public Sector.

A hybrid consensus development conference was used to facilitate the presentation of relevant evidence, and then the consideration of this evidence by a panel of fourteen stakeholders. An expert researcher facilitated the nominal group technique (NGT) to generate and rank ideas. The NGT produced and prioritised ten areas for action. Extensive ideas within each of these ten areas were recorded. These ideas echo some of the recommendations from Studies 1 and 2 but also extend beyond these. The ten areas identified, along with key professional implications, are listed in Table 10.4 and are foundational to the guidelines discussed in Section 4.

Table 10.4: The ten categories for action identified by stakeholders in the consensus development process

Prioritised categories for action	Key Implications				
	Practice	Learning & development	Leadership & management	Policy	Research
1. Supervision and support	x	x	x	x	X
2. Resources	x		x		
3. Policy, leadership and governance			x	x	
4. Education and training		x			
5. Professional knowledge and skill	x	x			
6. Effective referral and care pathways			x	x	x
7. Data and evidence for service improvement			x		
8. Professional attitudes, behaviours & dispositions		x			
9. Inter and intra disciplinary action and cohesion	x		x		
10. Intersectoral systems approach			x		

Each of the seven manuscripts contributes key recommendations for support and development strategies for generalist occupational therapists delivering hand-injury care. Before synthesising this evidence into guidelines, it is prudent to re-visit the central qualitative phenomenon of the PhD study, *the experience of delivering hand-injury care in a generalist capacity,* that was examined through instrumental case-studies in Studies 2 A and 2B. The PEO Model[63] embedded in the PhD study's conceptual framework (Figure 10.1), identifies this experience, or *occupational performance*[63], as the dynamic centre-point of therapists' on-going development. A discussion of key features of this experience forms the

focus of the next section, grounding the guidelines that follow (10.4) in generalist occupational therapists' occupational performance.

10.3 The *Experience* of delivering hand-injury care as a generalist: the P-E-O transaction[63]

Occupational performance is the term given to the dynamic transaction-space between the person, environment and occupation. Law et al. define this as "the *dynamic experience* of the person engaged in purposeful activities and tasks within an environment"[63(p.16).] The occupational performance of generalist occupational therapists, or the *experience of delivering hand-injury care in a generalist capacity,* was the phenomenon of interest in this PhD study and was the specific focus of studies 2A and 2B. Before attending to the insights that studies 2A and 2B add to our understanding of this experience, it is necessary to revisit the components of this transaction: the person, occupation and environment (PEO)[63]. As described in the conceptual framework, the transactional view of the PEO[63] means that one cannot completely dissect these components from one another, and some factors may arguably be classified differently or in the intersection between components. However, a brief exploration of the PEO components in this study is discussed before *the experience*, or transaction of these components is unpacked.

10.3.1 The Person

The PEO Model conceptualises the *person* as body, mind and spirit, and as a 'unique being who assumes a variety of roles simultaneously'[63(p.15)], roles that change and shift over time in terms of duration, importance and significance. The individual brings personal attributes, personality traits and style, self-concept, competencies, skills (innate and learned), life experiences and cultural background. In Study 2 (A and B), the *person* was a complex and unique individual working as a generalist occupational therapist in the South African public sector.

All participants in Study 2 had a four-year undergraduate occupational therapy degree from a South African University. This means that all would have received undergraduate education in hand rehabilitation. However, a survey of the content of programmes at the eight universities that train occupational therapists demonstrates substantial variation in the nature of content

and time allocated to hand rehabilitation learning opportunities[100]. It cannot, therefore, be assumed that therapists start their careers with the same level of expertise within hand rehabilitation. Given that most participants reported an absence of practical undergraduate experience in hand rehabilitation, it is likely that most therapists operate at a *novice* or *advanced beginner* level of expertise when commencing hand therapy practice after graduation[97].

Thirteen participants (86.66%) had <5 years of experience, one participant had >10 years and the final participant >15 years. This is consistent with findings that show a trend of young therapists staffing the public sector and moving into the private sector after gaining a few years of experience[47,48]. While the participants with more than 10 or 15 years of experience may be expected to have substantially higher levels of expertise in hand rehabilitation, this may not necessarily be the case. Literature shows that experience does not necessarily translate into expertise: time, experience, quality experience[92], personal factors[92,94] and contextual factors[91] all play a part in expertise development. While the actual level of expertise cannot be predicted, the nature of hand rehabilitation expertise that longer-serving generalist occupational therapists develop may realistically prepare them to be what Kuhlmann and Ardichvili refer to as "experienced non-experts"[92(p.268)]. Experienced non-experts will be able to competently treat patients with hand injuries and conditions but will still rely on the knowledge of experts for complex problems[92]. This conceptualisation may be a realistic target for the capacity strengthening of generalist occupational therapists for hand-injury care and is consistent with the literature around the articulation of the role of the specialist and generalist discussed later in this chapter.

Ned and colleagues' study of demographic trends amongst occupational therapists found that the typical profile of a South African occupational therapists is female (95%), between 25 and 45 years old, classified as white (65%) and working in the private sector[150] in the better-resourced Gauteng, Western Cape or KwaZulu Natal provinces (74.1%). Gender (93.3% female) and race (73,3% white) demographics in Study 2 also reflected largely typical demographics. Deviating from this typical profile, 60,0% (n=9) participants were less than 25 years old; the entire sample came from the public sector; and less than half of the participants (n=7; 47,7%) were working in the three better-resourced provinces. This distribution is explained by the project being strategically positioned to address service

inequity in hand therapy. Attempts to further diversify the sample in terms of race and province were restricted by the recommendations of rich information sources received, as well as hesitancy to participate by some therapists who were invited to participate. That said, a look at the demographic spread of member therapists of the South African Society of Hand Therapists shows strong dominance of white female therapists working in Gauteng and the Western Cape[176]. This non-representative demographics of the South African population suggests a need for the hand therapy community in South Africa to diversify to begin to reflect the demographic profile of the populations served in terms of gender, race and language as a means to pursuing universal health coverage[150]. Intentional action by the leadership of the South African Society of Hand Therapy to address this is recommended. It must, however, be acknowledged that little progress can be made in terms of gender, race and language diversity without higher education graduating occupational therapists that represent the South African demographics. Thus, universities must continue[150] (and re-energise) their commitment to producing an occupational therapy workforce representative of South Africa's race, language, gender and cultural diversity.

Notwithstanding the demographic features of Study 2's participants as a group, each participant brought their backgrounds, experiences, dispositions and abilities to this transaction: *Solo Worker Bee's* personal experience of having an ethnically diverse family and experience of different socio-economic situations enabled her to relate more easily to diversity among her patients. *Tired and Trying* described herself as "not very creative" which made hand therapy in a low-resource rural setting, where injury presentation "doesn't fit a certain box…or…picture" more challenging. *Bad Grad* reflected on her personal experience of sustaining a hand injury as a teenager and receiving therapy for the injury. She shared that "you do not realise how much hands have an impact on our lives" and explained how her experience prepared her with an appreciation for hand therapy. *Just Beyond a Just-right Challenge,* who had in jest been told by her university lecturer to "never go and work in hands", demonstrated strong motivation to develop her hand therapy expertise for a number of reasons, including to "prove (the lecturer) wrong". *Learning to (Butter)fly* reflected on the hindrance her passive approach to learning at university had on her transitioning to practice. These, along with numerous other personal factors, influenced participants' experiences of delivering hand-injury care.

10.3.2 The Environment

The depth and breadth of the impact of the context and environment on participants' experience was vast. Discussed again under *the experience* section below, examples highlighting key aspects of the environment are highlighted here, acknowledging that many 'layers' of the environment are intertwined and do not exist independently of each other.

As an aspect of the *physical environment*, restricted physical and human resourcing had a pervasive impact: the absence or scarcity of physical human resources more strongly characterised the novice participants' experience in study 2A, than the therapists in study 2B. This is no surprise, given that Community Service is a strategy for human resourcing in underserved contexts. Although low human resourcing was a perhaps more blatant reality of the novices' experience, all participants described this feature and very often its impact. As a profession with a human resource shortage in South Africa[130], the 'footprint' that occupational therapy is able to exert in terms of its value and impact as a health profession in South Africa, is restricted.

Universities have responded to a mandate to increase the number of occupational therapists that they graduate, contributing to a 7.1% increase in the number of registered occupational therapists between 2002 and 2018[150]. While this is promising, it falls far short of the need for occupational therapy in South Africa[150]. Furthermore, the restricted capacity of the Department of Health to employ occupational therapists in the public service means that struggles still exist in converting the increasing number of graduates to a substantially more robust public service workforce. Data shared via email by the Deputy Director for Disability and Rehabilitation of the National Department of Health in 2022, confirmed that 1256 occupational therapy posts were filled in the public sector while a further 257 posts were vacant. This sector serves over 80% of the population but is staffed by around 25% of the occupational therapy workforce in South Africa[150]. Occupational therapy workforce growth with impact in service delivery thus remains a priority for the profession.

The *economic context* of patients, communities and health services was by far one of the most influential contextual factors influencing the delivery of care and is arguably a central defining feature of hand therapy in LMICs. It strongly influenced patient adherence, the

restricted frequency of hand therapy follow-up sessions, limited resources, limited availability of medical and surgical services, and the considerable impact of secondary complications.

Although not as obviously perceived, the *geopolitical context* also influenced experiences. *Tired-and-Trying* 'felt' the ramifications of the historically marginalised province in which she worked. She explained that her province was:

> "…Historically very marginalised…a barrier that's continued to hinder service delivery. I feel like it's still very much an area of the country that (is) forgotten and service delivery is probably at its worst (here)…some patients travel over three hours to get to us…so that's I think a huge environmental barrier when it comes to treating these…hand injuries" *Tired-and-Trying*

Learning to (Butter) fly perceived similar influences of South Africa's *socio-historical context* on her experience. She reflected on the epistemological foundations of health professional education in South Africa as well as the influences of Apartheid policies:

> "…If you look at health professionals and our education, it's more from a Eurocentric perspective and medical model perspective…versus when you look at the patients that we see from rural areas or…'informal areas'…their culture is obviously clashing…and…if you look at the context of … Apartheid…the socio-historical background. If you are…(from a) rural…setting…when you've been taken out of that environment…it's a shock… and then also having that background of them being displaced during Apartheid time…(leading to) distrust against health professionals." *Learning to (Butter) fly*

Against this backdrop, this participant explained the need to exercise empathy and care, and to actively build trust with patients whose experience with a health system has not been positive.

Indigenous medicine and traditional healing interventions, as an aspect of the *sociocultural environment*, influenced some therapist's hand-injury care. While many participants were not aware of patients' traditional healing health-seeking practices, two rural participants shared their experiences:

> "…Something that was very new to me this year was coming into contact with spiritual medicine and ancestral things that have actually played a huge part, more than I thought it would. But often having patients who would incorporate that and…ask questions about… '…but if I drink this beer or…this stout…will this

> help…or my ancestors are saying this'…being able to balance that has been quite challenging". *Tired and Trying*

Different in the Lallies reported her experience while acknowledging some uncertainty about her understanding:

> "…We have two different types of places people go for care as well. This is sangomas and then traditional healers…the sangomas, I don't know if I'm correct…but they're the people that will give you muti to drink…they throw the bones and things…and then the traditional healers are more the people, they will make scratches or they will actually put something into the wound site and they are more I want to say like active carers" *Different in the Lallies*

Different in the Lallies's experience was that patients would come back to the hospital and their hand infection would have been aggravated by incisions made on the hand by the traditional healer. Indigenous medicine and traditional healing practices are utilised by a substantial part of South Africa's population[328,329]. Therapists' limited familiarity with traditional healing practices suggests that a need exists for occupational therapists to develop their knowledge of the indigenous health practices in their context as this invariably bears relevance to occupational therapy intervention and client-centred processes.

While representing only a sample of environmental features, the accounts shared by therapists demonstrate the complex influences that the environment exercised on participants' experience of delivering hand-injury care, and on the occupation of *delivering hand-injury care.*

10.3.3 The Occupation

Providing occupational therapy for patients with hand injuries in a generalist capacity in the public sector was found to have various typical features. These generalists, by virtue of fitting the inclusion criteria of the study, routinely treated patients with hand injuries or conditions although there was substantial variation amongst therapists. Although statistics were not requested from the six independent practitioners who participated in study 2B, the nine Community Service occupational therapists who participated in Study 2B treated a median of 32 (Range: 8-100) patients with hand injuries per month. This is larger than the 20 hand-injured patients per month previously reported by a larger group (n=86) of Community Service occupational therapists[67]. Participants in this study may treat more patients with hand

injuries than what is typical, leading to their eagerness to participate in the study. Nonetheless, this study affirms the substantial load of hand therapy demanded of many generalist therapists in South Africa. The generalist nature of the caseload kept work interesting and was thought to assist therapists in retaining a holistic focus, while also being challenging because 'you can't be good at everything'. Many, though not all, participants were required to deliver hand-injury care at multiple service sites (e.g. clinics) or patients' homes necessitating transport of hand-therapy resources and equipment from one site to another.

Interpersonal violence was a common cause of injuries across participants. Acute and chronic hand injuries were common while contextual variation was noted: one participant saw many industry-related injuries sustained in factories in the area, while one of the rural therapists spoke of minor injuries turning to major sepsis in patients who could not afford to travel to the hospital. Treatment of patients with neurological impairments of the upper limb and hand due to strokes were also common. Neurological conditions affecting the hand may not always be considered to be part of a hand therapy caseload, but the Community Service participants in Study 2A requested a continuous professional development session focused on this area of hand therapy, and one of the participants in Study 2B, during a member-checking interview, raised the necessity of reflecting neurological conditions in the results of the project. This should not be surprising as almost all generalist therapists (n=83; 91.3%) in a 2013 study[67] provided hand therapy for patients whose hand impairments were cause by central nervous system disorders. In the same year the Journal of Hand Therapy published a special issue on rehabilitation of the neurologically impaired upper limb in response to a need by hand therapists to better understand how to improve upper limb function in clients with these impairments[330]. Making evidence-informed learning opportunities available that are appropriate for generalist therapists is therefore needed.

Environmental factors strongly influenced the nature of participants' hand-injury care occupation are not unique to this study. Poor ability to diagnose hand injuries by medical staff was common, likely due to inadequate training in hand-injury management[9]. Access to surgical care varied significantly among participants' practice settings which is symptomatic of disparities in hand surgery care across South Africa[46] and internationally[331]. Secondary complications were exceptionally common and patient adherence was reported as a

challenge across participants, a challenge previously reported in South African literature[269,332]. The latter variables complicated the presentation of injuries and made management more challenging and less able to be guided by treatment protocols. Follow-up appointments were infrequent and hand therapy resources were particularly limited in more rural or remote settings. Challenges with referral systems were another common challenge among participants, complicating the continuum of hand-injury care. Rural participants in particular, reported the frustration of knowing that patient outcomes could be significantly better if they had access to surgical care. Access to hand therapy expertise was a challenge for almost all of the generalists who participated in the study and all therapists appeared to work with some level of discomfort because they lacked extensive expertise in hands. These features suggest that the tasks and activities typically associated with the hand therapy that participants provided may differ substantially to the hand therapy tasks and activities demanded in contexts without these features. As the PEO Model and other occupational therapy conceptual frameworks assert, the context shapes the task[63,333]. Therefore, contextually responsive strategies to support generalist therapists cannot assume the tasks and activities that constitute hand therapy in a given setting. These tasks and activities must be analysed in context. Tracking therapists' experience of these tasks, as demonstrated by Study 2, offers a valuable means to understanding the nature of hand therapy in specific contexts. National and international hand therapy organisations would benefit from inviting therapists in diverse contexts to share their authentic practice experiences through social media videos (e.g. shared on *Twitter, Facebook* and *Instagram* as *#TheRealHandTherapyReel* or similar) as an easy but powerful way of strengthening these organisations' exposure and responsiveness to contextual diversity.

10.3.4 The Experience

Highlighting aspects of the *person, environment* and *occupation* begin to sketch features of the transactional phenomenon: *the experience of delivering hand-injury care as a generalist occupational therapist in the South African public health sector*. Further insights into the phenomenon are provided by the pseudonyms of the participants in both study 2A (Community Service occupational therapists n=9) and 2B (Independent practitioners n=6). These pseudonyms, along with excerpts extracted from participant quotes and vignettes highlight various similarities and subtle differences between the novices' experience in Study 2A and the more experienced therapists' experiences in Study 2B. Study 2 participant pseudonyms, along with samples of their experience, may be viewed in Appendix K as a reminder to the reader and an introduction to the discussion of key features of participants' experience, which follows.

One of the most common features of practice across Study 2A and Study 2B was that delivering hand-injury care, in their unique practice settings as a generalist, is *challenging* for novices and more experienced therapists alike. The sense of challenge led to varying levels of anxiety but also appeared to be accompanied by a sense of excitement or determination. Contrasting feelings of both stress and satisfaction were common in both studies. Tangible anxious enthusiasm is not uncommon amongst therapists transitioning to practice, described in another qualitative study as a phase of 'euphoria and angst'[334]. Anxious enthusiasm featured less strongly in study 2B. Although anxiety was still referenced, therapists in Study 2B appeared more grounded and able to problem-solve pragmatically, indicative of a having adapted or 'acclimatised' to a context and its demands, and likely a growth in expertise. A level of uncertainty or limited confidence was evident across both studies, though more evident among the novice Community Service participants in study 2A. Hand therapy is often perceived as a specialist area of practice[50,67] and as generalists required to 'be decent at everything', a sense of uncertainty or restricted confidence for hand therapy is likely a typical characteristic of generalist practice.

Most participants seem to have a deep appreciation of the far-reaching impact of hand-injuries on patient's lives. This is not surprising given the holistic, client-centred nature of

occupational therapy theory and practice, but also potentially represents a feature of practice in LMICs as ability to use one's hands and ability to earn a livelihood are closely linked[18].

Another feature largely seen across participants was a sense of intentionality to develop competence in hands. In Study 2A, this feature was identified as agency. Agency, though a complex phenomenon, consists of reflective identification of one's values and priorities, confidence in one's abilities, and "the capacity to intentionally direct one's efforts towards specific goals"[335(p.1)]. Reviewing transcripts during the writing of this discussion also elucidated a strong sense of responsibility towards patients illustrated in *Learning to (Butter)fly's* reminder about "… the oath that we took as health professionals to …continuously develop ourselves".

It must be acknowledged that the self-nomination and nominated sample approach to sampling used in study 2A and 2B respectively may have substantially increased the likelihood of therapists with agency and drive to participate. Agency is likely not representative of all generalist occupational therapists delivering hand-injury care in the public sector and this needs to be considered when developing capacity strengthening strategies. Nonetheless agency is believed to a changeable attribute that can be fostered and supported[117].

One very distinct difference in participants' experience was the abbreviated nature of Study 2A participants' hand-injury care experience: none of the nine therapists went on to work in hand therapy practice after completing their compulsory year of service, while all study 2B participants continued to deliver hand-injury care beyond the period of data collection, albeit within a different setting. The difference in the duration of the generalist role has significant implications for capacity strengthening for these therapists to ensure the sustainability and acceptable return on investment for stakeholders contributing to the support and development of therapists and their hand-injury care services. The dynamic nature of the experience of generalist therapists is considered in the next section.

10.3.5 A dynamic transaction

The PEO Model[63] asserts that participants' *experience* of delivering hand-injury care, will be a dynamic transaction. The dynamic phenomenon is due to spatial and temporal features that

produce varying congruence of the *person, environment* and *occupation* over days, weeks, months, years and eventually across the lifespan[63]. *Transaction*, as described in the conceptual framework (*Chapter 2*), suggests complexity and an interdependence of the person and environment. Both transactionalism and dynamism were characteristic of participants' (Study 2) experience.

The pseudonyms of *The Growing Therapist* and *Learning to (Butter)fly* hint at the dynamic characteristic of participants' experience of delivering hand-injury care. This dynamism is illustrated well in examples from the raw data generated through a guided reflection task (Study 2A). *Illusionless Optimist* (see Figure 10.2) illustrated her PEO transaction and labelled the January 2021 transaction *"Person: very incongruent, very inexperienced, and not at all confident, had a lot of ideals but not grounded in reality"*. Her illustration of October 2021 is labelled as "*More congruent but still room for growth…"* A severe incongruence was seen in *Dedicatedly Winging-it's* (see Figure 10.3) picture who described her initial experience as 'finding my feet' and her transaction showing greater congruence later in the year. This shift towards improved congruence is developmental and can be expected in a therapist transitioning to practice. A euphoria and angst[334], reality shock[336] and disappointed expectations[334] have been reported as characteristics of the transition to practice for new graduates. Participants in Study 2B did not report quite the same current experiences but seemed to reflect on their growth over time and felt less rattled by not knowing. Considering Dreyfus and Dreyfus' stages of skill development[337], this lessening of anxiety is to be expected with a growth in experience and expertise.

The transition from trainee to practitioner is well documented in the literature. It is a complex process, often accompanied by great stress[390]. A study of a group of novice occupational therapists, starting practice at a large metropolitan hospital in Australia, reported new tasks feelings of stress and anxiety, as well as new tasks being time-consuming. Their transition, however, was supported by personalized support, reassurance and guidance by senior colleagues. The novice therapists' clinical reasoning and professional skills were developed through guided questioning by supervisors and reflection used to assist the young therapists to identify and address their learning goals. Workplace support and a consistent caseload were viewed as strong facilitators for novice clinicians[391]. This study suggests that feeling

overwhelmed, as many of the participants in this PhD study alluded to, is *normal* even when robust support and guidance is available in the work environment.

While the stress and complexity of transition to practice may be unavoidable, the transition may still be considered more or less 'successful'. In a 2020 scoping review confidence, professionalism and setting /environment factors were found to be central to successful transition of occupational therapists to practice[392]. Similarly, a sense of competence, a fit with the employment setting, and mentorship were some of the critical components for nurse's transitioning successfully to practice[393]. For doctors transitioning to independent practice, the need for a professional community to ease the shift to independent practice was considered important[394]. The experiences of the participants in this PhD study echo many of the findings in these studies, but in many cases the absence of key facilitators of successful transition were evident (e.g. Figure 10.5).

African scholars recently conducted an integrative review of health care professionals transition to practice focusing on the facilitators and barriers to effective transition as well as coping strategies utilised. A thematic analysis of 24 relevant articles demonstrated that *systems and structures*, *personal capacities*, *professional competence*, and *mediating procedures* were key characteristics of the transition. Each of these four themes encompassed various barriers, facilitators and coping strategies. The authors highlighted the need for more practical and clinical fieldwork opportunities during education, and accessible continuous professional development opportunities after graduation[390].

Recent guidelines for supporting transitions of medical practitioners cite two strong findings from the literature: that transitions are not a moment in time but rather a continuum and that learning opportunities, that are authentic and meaningful, should be embedded in practice[6]. The *fostering of progressive independence* is the critical ingredient of supporting successful transitions[395]. *Sudden independence* appeared to be a far more salient feature of Study 2A and 2B participants' transition experience in this PhD study. This contributed to ongoing challenges, features of unsuccessful transitions, and though not measured in this study, may have affected the quality of hand rehabilitation provided by these therapists.

The developmental dynamic across the year was not the only dynamic highlighted in the study. Although steady growth and increasing P-E-O congruence could be seen across the year for CS participants, the transaction was also dynamic at a particular point on a timeline, as *Dedicatedly Winging-it's* showed (see Figure 10.3). She explained fluctuating congruence as being 'dependent on each circle' suggesting that a change in the demand of the occupation, the enablers in the environment, or the capacities of the person dynamically affected the transaction. An important insight is therefore that strong overlap is not permanent. Although *Learning to Butter(fly)* realised with relief that "incompetence and poor confidence are not a life-sentence", *Sassy for the Sake of the Service* admitted that wearing the multiple hats of a generalist "becomes very overwhelming". *Just Beyond a Just-right Challenge* felt that faced with the same demands for an extended period, she was going to burn out. These examples of changes in P-E-O congruence highlights the need for therapists, and their colleagues and managers, to be attentive to the experience of occupational performance as a 'thermometer' of healthy or poor P-E-O congruence. As therapists, creating a 'just-right challenge'[338] is essential for effective therapy with patients, but is it a concept that perhaps needs to be applied to therapists' management and their self-management? Scholars have recently applied the concept of occupational balance to the study of occupational therapists' work conditions[339] suggesting benefits in applying key therapeutic insights to our own health and well-being.

10.3.6 A 'giant' environment

Illusionless Optimist (Figure 10.2) tracked her growth from what she labelled as 'unconscious incompetence' at the start of CS to 'conscious incompetence' towards the end of the year. This participant used Dreyfus and Dreyfus's conceptualisation of expertise development to characterise her growth. Surprisingly she did not label the 'person-circle' with the competence levels, but related her competence to the environment, explaining that she "didn't understand the environment at all, I had no clue what I was getting into".

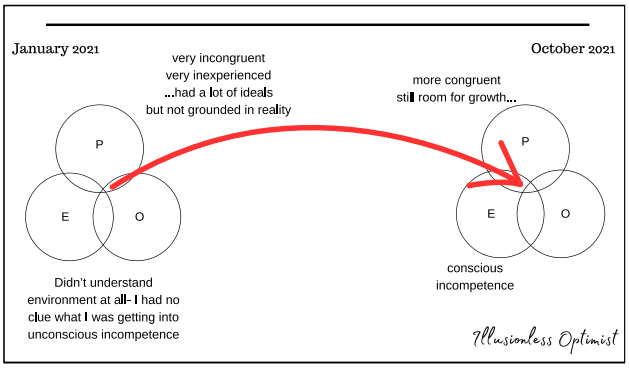


Figure 10.2: *Illusionless Optimist's reflection on her PEO transaction (see Appendix L for raw data)*

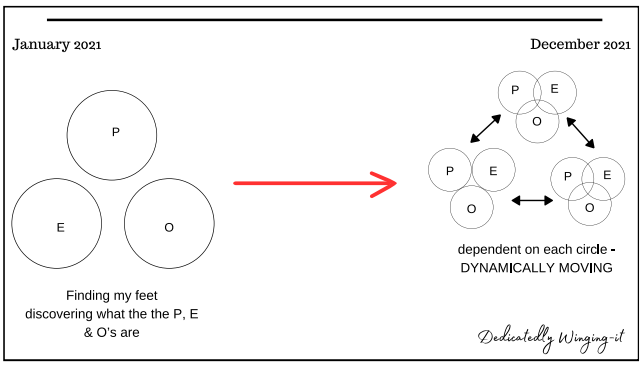


Figure 10.3: *Dedicatedly Winging-it's reflection on her PEO transaction (see Appendix L for raw data)*

Anx-cited outsider also highlighted the marked impact of the environment on her experience: her 'giant' environment-circle initially did not overlap with her person-circle (see Figure 10.4). She explained:

> *"My experiences were little, my knowledge was little, I felt like I didn't belong…like it's overwhelming and it's not what I'm used…trying to be part of the environment the best that I can". Anx-cited outsider*

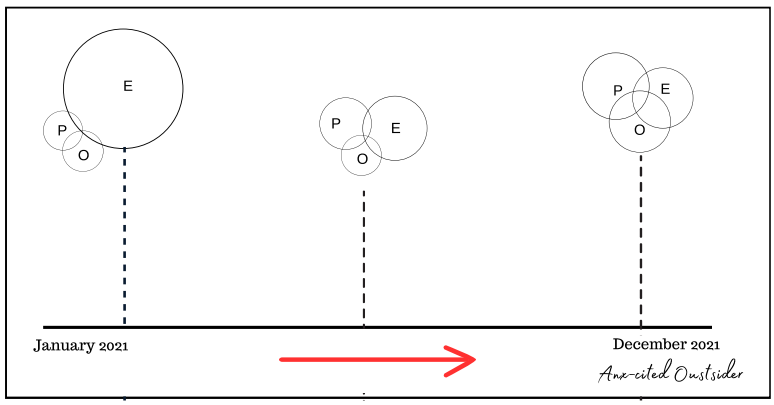


Figure 10.4: *Anx-cited Outsider's* reflection on her PEO transaction (see Appendix L for raw data)

Language barriers, limited time with patients due to a busy hand clinic, and limited resources were additional environmental factors that contributed to a challenging experience. The latter challenge often resulted in therapists' resourcefully re-purposing materials in the hospital environment for treatment activities or assistive devices. However, a lack of resources also hindered therapists' ability to practice occupation-based hand therapy. *Illusionless Optimist* explained:

> *"I rely a lot on exercise …and feel like I'm not being very OT-ish…the other day the physio said to me… 'There's no need for an OT to work at the hospital because the physio can do everything an OT can do…because there's no resources it's very difficult to be really occupational and this affects…people's image of OT". Illusionless Optimist*

A similar experience was reported by CS occupational therapists who completed their CS in 2013: 63,5% felt that occupational therapy was poorly recognised and 44,8% reported 'feeling like a physio'. The latter experience was partly explained by not having equipment and resources to use activity as a means. A lack of resources has previously been reported as a challenge to the hand therapy practice of novice therapists in South Africa[67], and a barrier to the practice of occupation-based hand therapy[271].

These experiences raise a question for our profession: can we send out occupational therapists without essential resources to enable the core contribution of our profession: participation in occupation? Admittedly physical resources are not the only means to providing authentic occupational therapy, and a lack of resources can foster the critical skill of resourcefulness. However, the South African context demands hand therapy[67] and the

evidence is increasingly supporting occupation-based therapy[340], necessitating action to ensure that novice therapists have the basic resources to practice their profession and enact their identity as occupational therapists.

Environmental factors, including a lack of resources, appeared to more markedly, characterise the experiences of the CS occupational therapists in this study. In Study 2A, 13/16 (81%) of the sub-themes generated in analysis related strongly to environmental factors, while Study 2B, fewer subthemes (12/18; 67%) spoke directly to the impact of the environment. This is possibly due to increased personal capacity of therapists with more experience, but is more likely linked to the fact the CSOTs typically work in more under-resourced and under-served environments. One of Study 2A's participants, who completed her Community Service in such a setting, perceived her P-E-O transaction to be incongruent or a complete mismatch.

10.3.7 A complete mismatch?

Tired-and-trying's PEO transaction (Figure 10.5) demonstrates a progressive improvement but ultimately a mismatch of the PEO relationship. This participant reported *"(needing) a psychologist to make it through the year,"* and prompts us to critique Community Service as a human resource strategy that sends the least experienced therapists into the most under-resourced contexts. Reid, a primary healthcare scholar, reviewed CS as a human resourcing strategy in the 2018 South African Health Review. He concludes that CS is an effective short-term recruitment strategy but is neither an effective retention strategy nor a long-term human resourcing solution for rural and underserved settings[246]. Study 2A, which sought to describe the hand-injury care experiences of Community Service occupational therapists, suggests that in addition to the issues of recruitment and retention, we need to also consider the question of novice therapist competence for practice in rural and underserved settings, and competence for hand-injury care specifically.

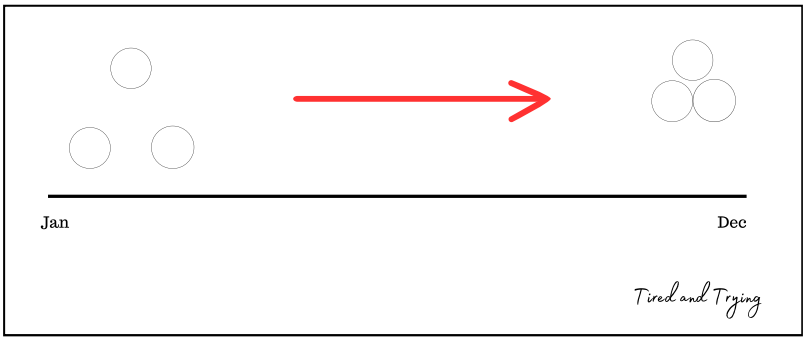


Figure 10.5: *Tired and Trying's* reflection on her PEO transaction (see Appendix L for raw data)

Medical scholars have advocated for appropriate university curricula to prepare graduates for practice in rural and underserved contexts341 adequately. This is unquestionably important but in considering this, *how* competence is conceptualised is critical. The constructs of competence and expertise were discussed in Chapter 2, but given the experiences shared by CSOTs, *the interaction of person and context* must be brought into our discussion of competence. Developmental psychologists argue that 'competence is an emergent characteristic of a person-in-a-context, not of the person alone… person and context collaborate to produce action and thought…context does not merely influence behaviour. It is literally part of the behaviour, participating with the person to produce an action or thought'[342(p.93)]. Is it then fair to conclude that working without basic resources can severely impede the competence of CSOTs for practice?

A lack of physical resources was highlighted in the previous section, but it is also necessary to consider supervision and support as essential resources for competent practice of novice therapists. The World Health Organisation (WHO) recently published a generic competency framework for rehabilitation workers[86]. Examples of the some of the proficiencies (from which worker competencies and behaviours are derived) are included in Figure 10.6 and 10.7 below. This Rehabilitation Competency Framework articulates sequential numeric levels of expertise rather than using descriptive labels (e.g. novice to expert). It is expected that CSOTs, as novice practitioners should be proficient at level 1 or possibly level 2. However, this study confirms previous findings that CSOTs are frequently required to practice level 4 proficiencies[11,139,12].

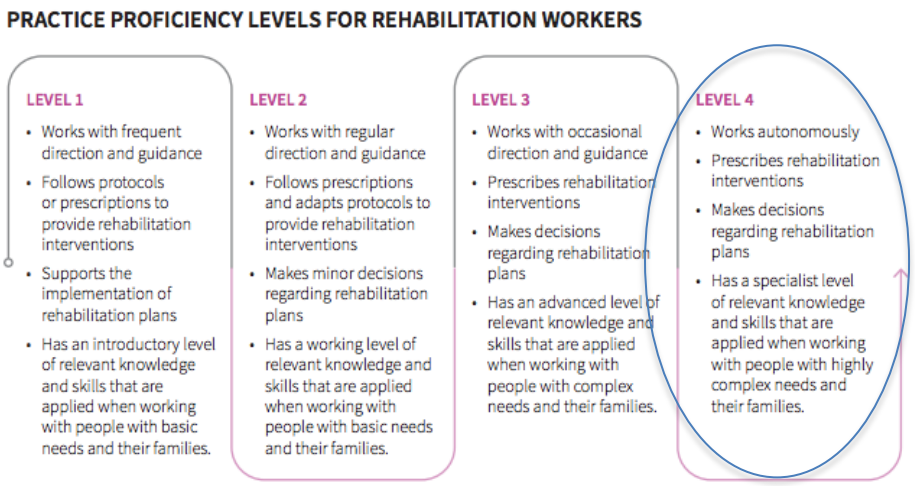


Figure 10.6: Practice proficiencies outlined by the WHO extracted from the Rehabilitation Competency Framework [86 (p.9)] (CC BY-NC-SA 3.0 IGO DEED)

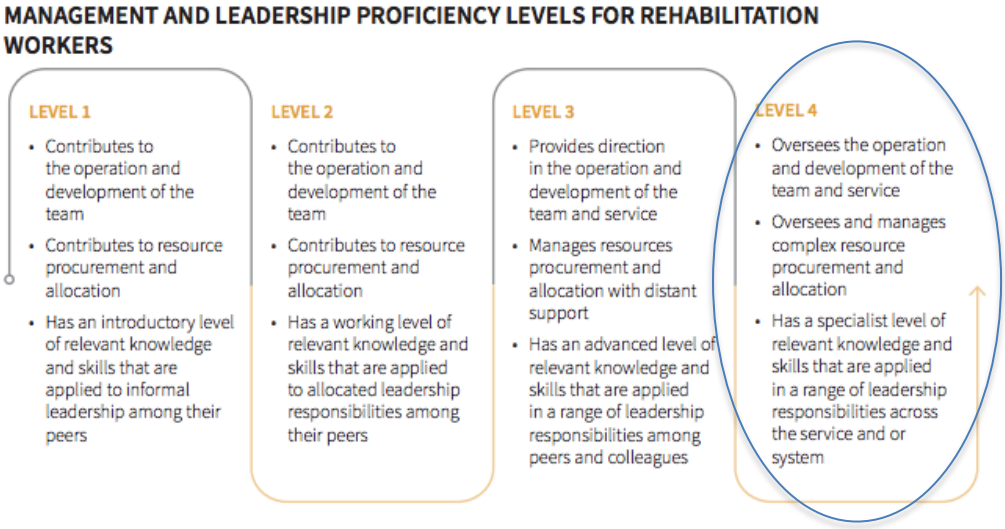


Figure 10.7: Management and leadership proficiencies outline by the WHO extracted from the Rehabilitation Competency Framework [86(p.25)] (CC BY-NC-SA 3.0 IGO DEED

A recent study reported high levels (55%) of emotional exhaustion (one of the three aspects of burnout measured in the Maslach Burnout Inventory) amongst CSOTs and highlighted support systems, supervision and job satisfaction as critical protective factors against burnout[248]. A study of burnout amongst health professionals in a rural part of South Africa's Mpumalanga Province recently reported high levels of emotional exhaustion and personal accomplishment. Factors associated with these results were identified through multivariate regression analysis leading the authors to recommend improved work demands, managerial support, role clarity as avenues for mitigating healthcare workers' experience of burnout[343]. These findings dovetail with Reid's advocacy[246] for more strategic human resourcing plans: the human resourcing environment needs to provide the supervision and support needed by

novice therapists to ensure that *competent* services are delivered to rural and underserved communities. It is not enough for a service merely to exist – it must be a quality service. Interestingly, consideration for service quality is typically characteristic of proficient practitioners[97], likely because, at this stage of development the therapist has the capacity to focus on the qualitative aspects of intervention. This suggests that long-term human resourcing strategies need to prioritise the retention of expertise, not just fill posts. During member checking for Study 2B, *Different in the Lallies they* captured the need for responsive human resourcing that facilitates the retention of occupational therapists with expertise. Some flexibility in human resourcing to attend to retention of staff has been exercised in what is referred to as 'Community Service absorption posts'. Although this supports service continuation, it does not necessarily optimise the retention of expertise:

> *"Retaining of permanent staff and (therapists with more expertise) the chance to apply for posts in (our Province) is such a struggle. Often there is a CS absorption post available (but) it actually creates more of a problem… the CSOT, for example, (was) placed alone (as the sole) therapist at a hospital with no support and then (they) get absorbed (as permanent staff) going forward with no support or no expertise of how hand clinics etc. can be done" Different in the Lallies*

Scholars have highlighted the inadequacy of human resource planning for health in South Africa and have appealed to the government to take the opportunity that the National Health Insurance (NHI) presents to plan collectively (with all stakeholders) and astutely, to respond to both the need and demand for health care services[344]. When thinking about occupational therapy for hand-injury care specifically, South Africa is in a better position than many other LMICs: South Africa *has* hand therapy expertise, however this is primarily located in the private sector. As highlighted in Chapter 1, therapists tend to gain initial experience in the public sector and then move into the private sector[47,48]. This essentially constitutes a poor return-on-investment for the employer (Department of Health) that has accommodated the expertise development of therapists during their early years of practice. Human resource strategies, therefore need to strategically consider how public sector services can capitalise on this expertise to strengthen hand injury care services across sectors. NHI again presents a window of opportunity for this. Sessional appointments have been used as a human resourcing strategy for rural and remote healthcare in Australia and offer a way of retaining therapists with expertise in a part-time capacity[345]. Considering the majority-female workforce of occupational therapists in South Africa who are typically required to balance

family and work responsibilities, along with the pull to move into private practice, sessional part-time work may hold potential for retaining expertise in the public sector. In rural Australia and New Zealand, the sessional employment of local practitioners external to the hospital is used to staff posts in areas that are not able to recruit, retain or support full-time posts[346]. This insourcing, if appropriately planned and governed, may again be well suited to the changes that will be phased in with NHI.

Additionally, retention may be strengthened by post structures that reward experience and additional skills or qualifications. In the United Kingdom, healthcare workers are able to progress through nine levels or bands with incremental salary adjustments that reward experience and expertise[347]. In South Africa, progression opportunities that reward clinical expertise are limited and may contribute to poor retention of therapists.

10.3.8 Putting occupation in context

Occupations are deeply contextual, and the nature of clients' and communities' occupations has been proven to impact participants' experience in delivering hand-injury care. Firstly, occupations are shaped by social and economic factors. *Different in the Lallies* explained her observation of occupational deprivation and its impact on patients' health and occupational choice:

> *"(Occupations are) very limited. People [also] don't have jobs. I think 85% of people here don't have any income except for grants…people sometimes make themselves disabled for grants…there's a lot of …occupation deprivation…there's not a lot of opportunities for different occupations in work…in leisure…there's not electricity…there are not sports clubs…schools don't really have sport; so then you are sitting with things like drugs that's become a problem…and we have a lot of people that's just depressed because they don't have anything that they enjoy doing…" Different in the Lallies*

This participant also raises the disturbing but common phenomenon of the perverse incentive of disability grants that has previously been reported[269]. *Sassy for the Sake of the Service* expressed a similar experience in her urban setting:

> *"Some people they're just so desperate…they've got nothing and…don't always follow through with hand therapy, because there is that perverse incentive…this injury might be the thing that helps you feed your children". Sassy for the Sake of the Service*

Harmful use of alcohol and violence in communities was described as another influence on occupation. *Sassy-for-the-Sake-of the Service* described the isolation of her sixteen-year-old patient who "doesn't want to go out anymore…(and is)…so scared to go and live his life" after being stabbed in the back by intoxicated friends and sustaining a spinal cord injury. She explained further:

> *"I think I wasn't prepared for the level of violence that there is in the community, between friends…people that know each other committing acts of violence, and then…there's gang violence, there's a lot of extortion, it's not a safe place to be"*.
> *Sassy for the Sake of the Service*

The occupational deprivation described by participants demonstrates the contextually situated nature of occupational participation described by Galvaan (2015) who has written of the impact that the social environment, and collective and contextual histories have on occupational choice[348]. More than 50% of South African road accidents are related to the harmful use of alcohol. In addition, alcohol misuse is directly or indirectly related to over 60% of domestic violence incidents, homicides and road deaths[349]. Scholars acknowledge the complexity of historical, social and economic influences on harmful alcohol use, with interventions needing to respond to a confluence of factors[350]. Occupational therapy theoretical frameworks that are undergirded by the premise of participation as a dynamic transaction between the person, the occupation and a complex environment[63], enable a conceptualisation of "addiction-as-occupation"[351]. Analysing addictive behaviours in relation to the nature of occupation, the environment (including occupational risk factors), flow and boredom[352], offers key insights into understanding addiction and suggest that the profession has a key role to play in collaborating to address the systemic drivers of alcohol misuse[353].

Participants frequently reported that their patients' participation looked different to their own, and that they needed to generate an understanding of this difference in order to deliver appropriate occupational therapy. *Tired and Trying* explained what she referred to as one 'very silly example' of this difference:

> "(Patients) hand-wash all their clothes…A lady in my culture with a socioeconomic status that I come from…will have a washing machine…or have someone who does her washing for her…(and) it's almost the first thing that they complain (about) when they've had an ulnar nerve injury…or any kind of (injury)…I've never hand-washed clothes". *Tired and Trying*

Understanding different forms of occupational participation meant that therapists could not operate on assumptions but had to use activity analysis to inform their therapy. *Dedicatedly Winging-it* related to being unfamiliar with hand washing and the impact that a hand injury would have on this:

> "I…resonated with the whole hand-washing thing. I remember coming home and (saying to myself) "You can't use this hand. Wash these clothes"…and I'm like trying to hand wash them and finding alternative ways that I could do it" *Dedicatedly Winging-it*

'Living yourself into the person's occupations' or simulating activities with patients to assist in activity analysis was also used by others to facilitate therapy tailored to patients' occupational profiles. *Anx-ited Outsider* explained:

> "Today I mock-chopped with my patient…we stood there…with invisible axes in our hands and…did this chopping motion" *Anx-ited Outsider*

Tired and Trying reported needing 'time to make that mind shift…(understanding) what people use their hands for in these communities'. She explained:

> "What I would be using my hands for, what my mom would be using her hands for, is very (different)…(here) a mamma …needs to use her hands…to put cow dung on the floor of her rondaval (round hut)…having a hand injury is going to affect her ability to do that, to plaster the walls…and the floor...it's such different kinds of occupations that have such different needs…like making pap (porridge)…chop down wood…collect water…which (are not) things I would have thought of before coming into this kind of setting". *Tired and Trying*

An understanding of local occupations was deemed important but was not always easy to develop due to language barriers and patients assuming that therapists understood the context. *Illusionless Optimist* explained:

> "There's a lot of occupations which people don't necessarily tell you when you ask them how they spend their day because they assume that you would know, and you don't necessarily know…exactly how the community works…like not many people have flush toilets…we haven't had water in two months…you don't realise coming in how much you don't understand" *Illusionless Optimist*

McAdam's work in rural South African communities highlighted gaps in professional frameworks around the occupations that people perform in rural communities, highlighting essential occupations missing from these frameworks and the substantial difference in how occupations are performed in rural contexts and well-resourced urban contexts[272]. This reinforces the need for decolonised curricula that expose students to theoretical frameworks and learning opportunities that capture occupations authentic to the South African context, as well as the diversity of occupations within it. *Tired and Trying* captured this necessity well when she explained.

> "At university…you bake cupcakes or you make a sandwich…and it's not culturally relevant here. Here they want to slaughter animals" *Tired and Trying*

This participant's statement affirms the importance of the function and form of occupations in occupational science and the importance of this for effective occupational therapy[354]. *Tired and Trying* also reiterated that using authentic occupations as a means and end in therapy was restricted by a lack of resources, time, and limitations of the hospital setting, perpetuating reliance on exercise as a treatment modality:

> "I find it so frustrating…often the patients will come to me…their issue is sweeping their yard… you can't replicate that in the hospital setting…and then I become solely exercise based…I find it so hard to recreate an authentic experience…we can't build a fire outside and make pap (porridge)…there's a hospital close to me…the therapy department had even tried to build a rondavel (round hut) outside (for)…cultural an traditional ADLs and IADLs, but…it's difficult because…you don't have time to recreate that…." *Tired and Trying*

Facilities that support hand therapy (and rehabilitation in general) in authentic occupational settings are important and need to strategically be considered in infrastructure planning by rehabilitation leaders and managers. In 1994 Myezwa reported successfully systematising "The Rehabilitation Village" concept in Mashonaland Central, Zimbabwe[355]. The multi-disciplinary project took the form of a residential training facility (for assessment and rehabilitation) for mothers and their disabled children that simulated a rural village. Mothers and their children were accommodated in thatch-roofed huts and an additional open hut with a built-in bench and protected fireplace served as the kitchen. Toilets and ablution facilities were also part of the village. The success of the rehabilitation village concept led to the

project being decentralised from a provincial to district level with 32 villages being established throughout six years[355].

Successful innovations that consider *occupation in context* and support authentic activity and participation-focused rehabilitation, like The Rehabilitation Village concept, cannot be left to individual therapists or therapy departments to establish and maintain. Sustainable innovations, continuously adjusting to respond to emerging rehabilitation needs[355], and available in all rural districts across the country, must be driven at a leadership and management level. Intersectoral collaboration between the Department of Health, university Faculties of Engineering and the Build Environment, RURESA (Rural Rehabilitation South Africa) and rehabilitation departments (academic and clinical) may present a way of piloting a similar initiative in South African rural communities, along with providing intersectoral and interdisciplinary fieldwork and research opportunities for undergraduate university students.

10.3.9 The Person and Occupation overlap: learning to 'do hands'

Despite her personal experience, *Bad Grad* and a number of other participants experienced delivering hand-injury care as a 'daunting experience' because of a lack of undergraduate practical exposure to the practice area. Young occupational therapists in South Africa have previously reported a need to 'learn-by-doing' in hand therapy[11] and it is therefore not surprising that participants in this study highlighted the need for undergraduate fieldwork opportunities in hand therapy to translate their knowledge to practice. Although *Different-in-the-Lallies* felt that undergraduate preparation most significantly impacted the first year of practice, and beyond that, "it's what you make of it", the experiential learning enabled in for clinical or fieldwork opportunities to translate theory to practice was a repeated recommendation.

While undergraduate fieldwork opportunities would undoubtedly be beneficial, the experiential learning required to translate theory to practice continues beyond graduation. Participants reflected on a number of personal factors that affected this process, including the impact of anxiety and mental wellbeing. They explained:

> "…The anxiety of it all kind of hindered my ability to…put all my theoretical knowledge into practice…" *Learning to (Butter) fly*

> "We had a very, very good lecturer…all those major diagnoses…she covered very well…but I wasn't always coping as well as I should have been so I think I wasn't listening as well" *Just Beyond a Just-right Challenge*

> "When you're in a panic mode, we tend to become very black and white in our thinking and so as soon as we're put up with a situation, it's like fight, flight or freeze mode…"I know nothing!" or you run away…or you're like, "Yes – come-on – let's do it!" And so I think it's a gradual process of "Oh my word I known nothing!" But there's a patient here and you need to do something. And I always heard my lecturers saying in the back of my head, "You know more than you think"…and just recognising that I wouldn't be there if I knew nothing" *Dedicatedly Winging-it*

These experiences highlight the impeding effect that anxiety has on learning and the process of translating knowledge to practice. The fact that most participants did not have any clinical exposure to hand therapy at university suggests that they began treating patients with hand injuries after graduation as novices or, at best, as advanced beginners. Anxiety is a typical experience for those in these two phases of expertise development[93,97], and a previous study has found high proportions of Community Service occupational therapists fearful of harming their patients with hand injuries (41,8%), feeling like hand therapy is a specialised area of practice (64,8%) and overwhelmed (40,7%). Preparing therapist's expectations for hand therapy and normalising feelings of anxiety would be beneficial for those new to hand therapy. However, students and therapists will benefit from understanding their anxiety responses, the functioning of the autonomic nervous systems, and mastering self-regulation strategies to optimise their functioning in learning and clinical settings. This is addressed in more detail in the next section.

10.3.10. What needs to be responded to? A summary

The research projects in this PhD aimed to identify how the support and development needs of generalist occupational therapists delivering hand rehabilitation within the South African public health sector can be met in a contextually responsive manner. Specific objectives positioned the research to respond to policy (Study 1), the experiences of generalist therapists (Studies 2A and 2B), as well as a broad range of stakeholders (Study 3). Section 2 (10.2) articulates part of the answer to "*what needs to be responded to?"* from each of the seven manuscripts. This section (10.3) has honed in on the phenomenon of participants'

experience of delivering hand-injury care. In summary, what one surmises from the results discussed is the need to respond to the environment appropriately and how one prepares the graduate for this. In addition, the study illuminated epistemological foundations at a personal and educational institutional level. Environmental features and challenges that have emerged include: economic hardships, the patient and community's response to these hardships, pervasive violence in the community, health belief systems (patients' responses), staff shortages, unique practice settings, the diversity in the occupational profiles of populations and the subsequent need for contextually appropriate use of occupation. The response of inexperienced therapists to the demand for hand-injury care within their unique and often challenging contexts highlights the multi-faceted nature of expertise. When personal and contextual features of expertise are considered, perceptions of a P-E-O mismatch are understandable, and the occurrence of burnout and anxiety is understandable. It is against this experience of occupational performance, or *the experience of delivering hand-injury as a generalist occupational therapist*, that the Guidelines which follow were positioned to respond to.

10.4. Guidelines

10.4.1 Developing guidelines

The final product that this PhD thesis sought to generate is guidelines for the support and development of generalist occupational therapists delivering hand-injury care in the South African public health sector. While studies 1-3 were phased to propose these guidelines after Study 3's consensus development process, principles for guideline development were sought to optimise the rigour with which these guidelines could be generated.

Developing guidelines relies on a process of evidence synthesis. A wide range of methods exist to synthesise evidence and are used for various purposes, including to aggregate information, explain or interpret phenomena, construct theory or develop guidelines[356]. Given the purpose of the overall study aim- to *develop guidelines for the support and development of generalist occupational therapists delivering hand-injury care in the South African public sector* - the literature on the development of clinical practice guidelines (CPGs)[357] and synthesising evidence for health policy and systems was consulted[356]. Both bodies of literature describe various systematic review methods to generate guidelines where the results of a relatively small number of studies of heterogeneous methodology are

synthesised. This means of evidence synthesis was poorly suited to the research question posed by this study, mainly because the project's intention to articulate 'contextually responsive' strategies necessitated a broad consideration of multiple forms of evidence. Scholars highlight the need for 'methodological flexibility' by 'researchers seeking to contribute synthesized evidence toward real-world challenges'[356(p.28).] Cornish critiqued the blanket use of systematic reviews, arguing that evidence frequently takes "multiple, contradictory and complex forms"[65(p. 263)] and that in many situations, systematic reviews would produce "context-insensitive summaries of 'the evidence'"[65(p.263)]. Cornish argues that a systematic review is able to generate a statement about whether an intervention works or not, but may not be able to accurately prescribe 'what works for this particular time, place and these goals'[65 (p.274)].

Consistent with the research paradigm of this thesis, Cornish proposed a pragmatist alternative for evidence synthesis, which she explains in the following way:

> "A pragmatist science of evidence would begin with the 'mess' of practice and seek to understand complexity and contingency rather than efface it. For those who work with people and communities, in the complexity of practice, the aspiration to produce simple summaries of evidence appears puzzling. From a perspective rooted in local realities, aspirations to draw on a diversity of forms of knowledge; to draw on practical wisdom to design interventions suited to contexts; and to develop models for making good context-sensitive judgments appear more fitting priorities."[65(p.274)]

In order to draw on the diverse forms of knowledge, contextual responsiveness and practical wisdom that Cornish refers to, the consensus development process (described in Study 3/*Manuscript 7)* was chosen, and the consensus process laid the foundation for the guidelines presented in this section. Consensus development methods (CDM) are a well-established method for guideline development[358]. Although guidelines for CDM are being developed, these are not yet available[359] and rigour was thus pursued through numerous strategies reported in Chapter 9 (*Manuscript 7).*

It was feasible to accept the results of the consensus process as the guidelines developed by this doctoral study, given that CDM methods are a recognised means of guideline development. However, the researcher wished to ensure that no evidence produced by each of the studies in this project was omitted and that sufficient detail was captured in each

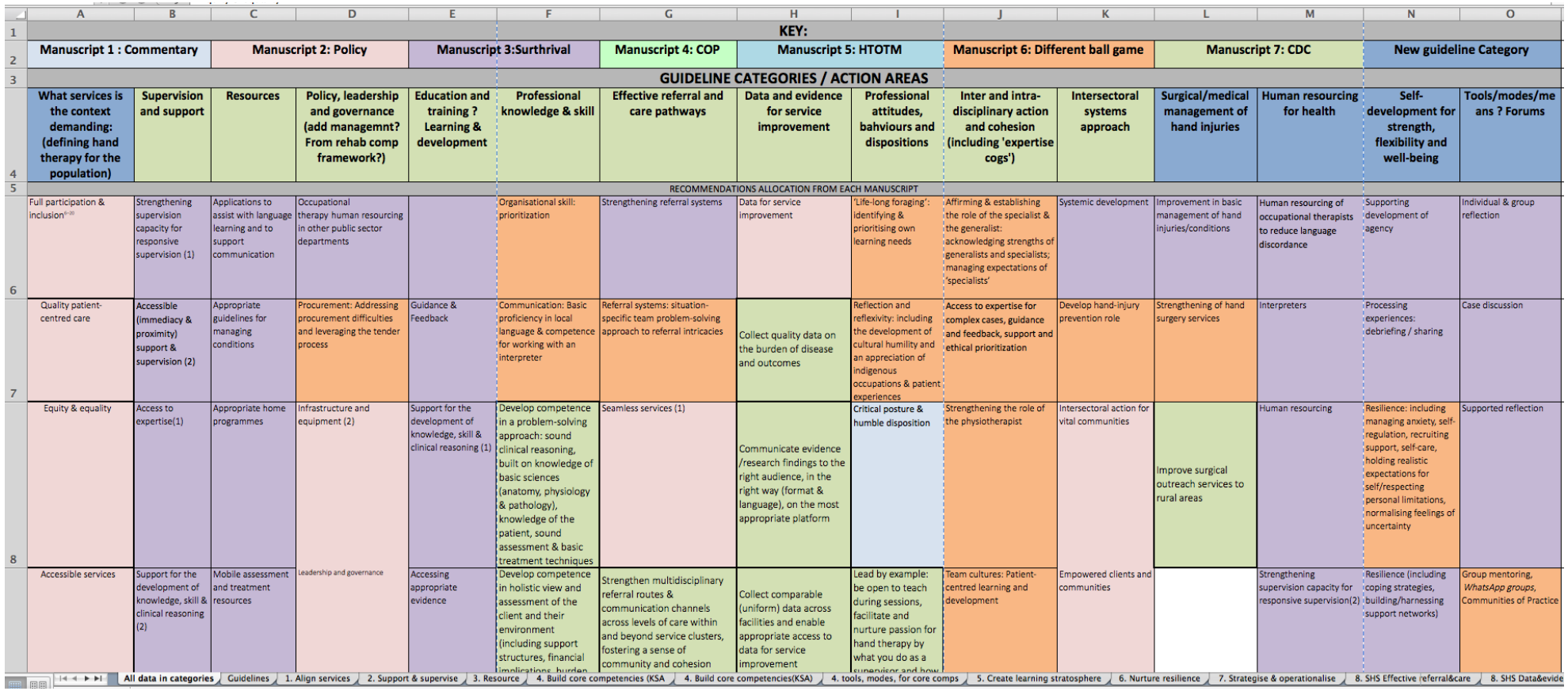
guideline. For this reason, the findings from each of the seven manuscripts were included in the final guideline development process.

10.4.2 The evidence-synthesis process

A systematic process was followed to synthesise the recommendations from each manuscript. The ten priority areas for action identified through the CDM in Study 3 (manuscript 7) were used as tentative categories or 'containers' to organise the recommendations. An Excel spreadsheet (available as a Supplementary File and illustrated below) was created with these ten action areas populating the columns (Columns B-K). Each manuscript was assigned a colour (see rows 1 and 2), and each recommendation was extracted and sorted into one of the ten categories. When a recommendation was acutely relevant to more than one category, it was placed in all relevant categories, and the duplication was indicated in the cell by a '(1)' or '(2)'.

During the process of categorising each of the recommendations, it became evident that some categories may 'lump' too many subject areas together, or an appropriate category did not exist for some of the data. In these cases, to avoid losing detail and to ensure sufficient specificity, additional categories were created (Columns A and L-O). A screenshot of the spreadsheet is included to illustrate how this was done (see Figure 10.8).

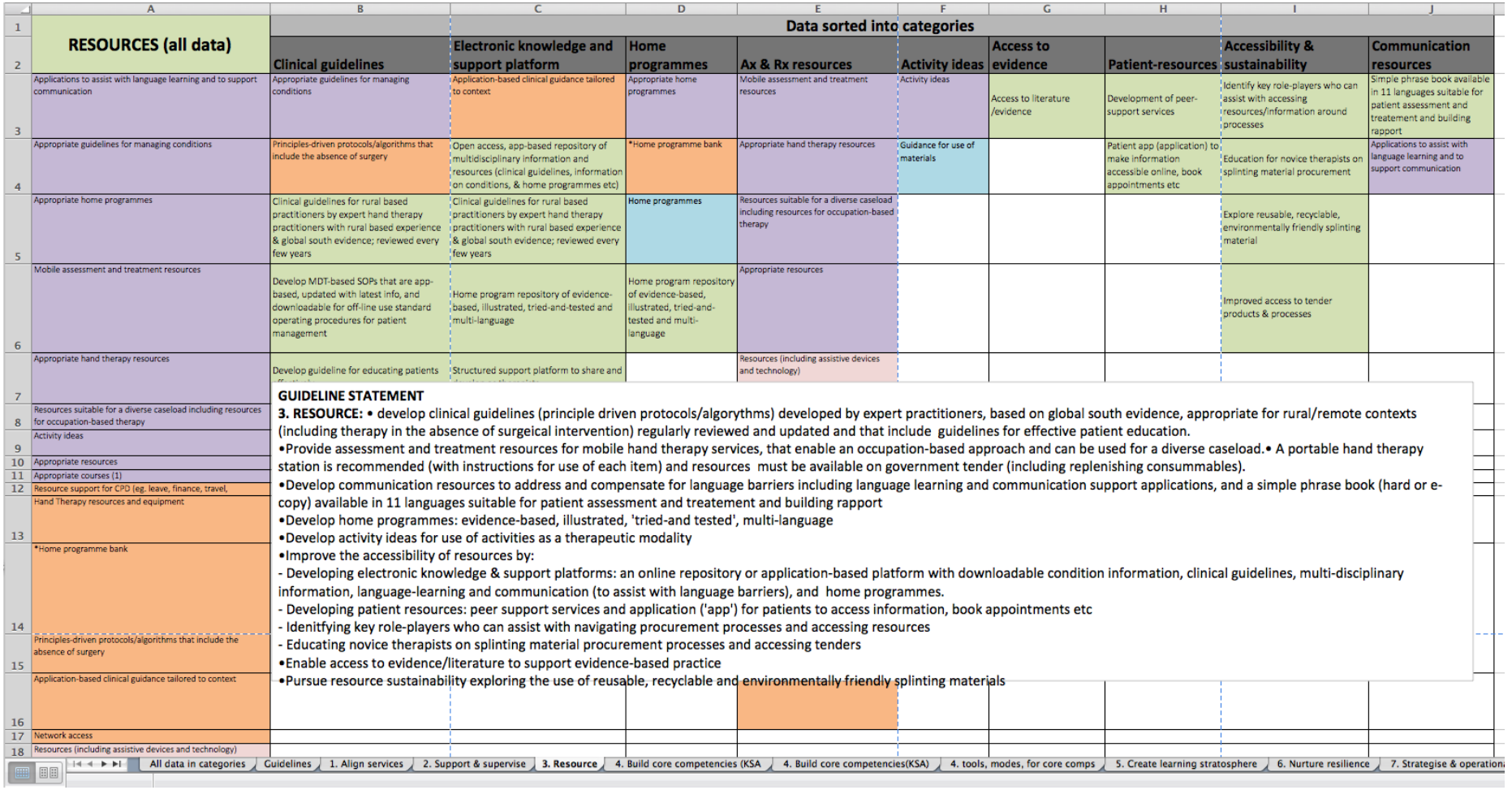
Each category (each column) was then copied to a separate sheet, and an example of one of the categories (*Resources*) is illustrated below (see Figure 10.9). All the recommendations in the category were listed in Column A and then further reduced (and copied across) into content sections (Columns B-J). A guideline statement was then created that summarised all of the content in Columns B-J (see white textbox for guidelines statement). Eleven guideline statements were generated and are presented and discussed below.



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	KEY:														
2	Manuscript 1 : Commentary		Manuscript 2: Policy		Manuscript 3:Surthrival		Manuscript 4: COP	Manuscript 5: HTOTM		Manuscript 6: Different ball game		Manuscript 7: CDC		New guideline Category	
3	GUIDELINE CATEGORIES / ACTION AREAS														
4	What services is the context demanding: (defining hand therapy for the population)	Supervision and support	Resources	Policy, leadership and governance (add managemnt? From rehab comp framework?)	Education and training ? Learning & development	Professional knowledge & skill	Effective referral and care pathways	Data and evidence for service improvement	Professional attitudes, bahviours and dispositions	Inter and intra-disciplinary action and cohesion (including 'expertise cogs')	Intersectoral systems approach	Surgical/medical management of hand injuries	Human resourcing for health	Self-development for strength, flexibility and well-being	Tools/modes/means ? Forums
5	RECOMMENDATIONS ALLOCATION FROM EACH MANUSCRIPT														
6	Full participation & inclusion[6–10]	Strengthening supervision capacity for responsive supervision (1)	Applications to assist with language learning and to support communication	Occupational therapy human resourcing in other public sector departments		Organisational skill: prioritization	Strengthening referral systems	Data for service improvement	'Life-long foraging': identifying & prioritising own learning needs	Affirming & establishing the role of the specialist & the generalist: acknowledging strengths of generalists and specialists; managing expectations of 'specialists'	Systemic development	Improvement in basic management of hand injuries/conditions	Human resourcing of occupational therapists to reduce language discordance	Supporting development of agency	Individual & group reflection
7	Quality patient-centred care	Accessible (immediacy & proximity) support & supervision (2)	Appropriate guidelines for managing conditions	Procurement: Addressing procurement difficulties and leveraging the tender process	Guidance & Feedback	Communication: Basic proficiency in local language & competence for working with an interpreter	Referral systems: situation-specific team problem-solving approach to referral intricacies	Collect quality data on the burden of disease and outcomes	Reflection and reflexivity: including the development of cultural humility and an appreciation of indigenous occupations & patient experiences	Access to expertise for complex cases, guidance and feedback, support and ethical prioritization	Develop hand-injury prevention role	Strengthening of hand surgery services	Interpreters	Processing experiences: debriefing / sharing	Case discussion
8	Equity & equality	Access to expertise(1)	Appropriate home programmes	Infrastructure and equipment (2)	Support for the development of knowledge, skill & clinical reasoning (1)	Develop competence in a problem-solving approach: sound clinical reasoning, built on knowledge of basic sciences (anatomy, physiology & pathology), knowledge of the patient, sound assessment & basic treatment techniques	Seamless services (1)	Communicate evidence /research findings to the right audience, in the right way (format & language), on the most appropriate platform	Critical posture & humble disposition	Strengthening the role of the physiotherapist	Intersectoral action for vital communities	Improve surgical outreach services to rural areas	Human resourcing	Resilience: including managing anxiety, self-regulation, recruiting support, self-care, holding realistic expectations for self/respecting personal limitations, normalising feelings of uncertainty	Supported reflection
	Accessible services	Support for the development of knowledge, skill & clinical reasoning (2)	Mobile assessment and treatment resources	Leadership and governance	Accessing appropriate evidence	Develop competence in holistic view and assessment of the client and their environment (including support structures, financial	Strengthen multidisciplinary referral routes & communication channels across levels of care within and beyond service clusters, fostering a sense of community and cohesion	Collect comparable (uniform) data across facilities and enable appropriate access to data for service improvement	Lead by example: be open to teach during sessions, facilitate and nurture passion for hand therapy by what you do as a	Team cultures: Patient-centred learning and development	Empowered clients and communities		Strengthening supervision capacity for responsive supervision(2)	Resilience (including coping strategies, building/harnessing support networks)	Group mentoring, *WhatsApp groups*, Communities of Practice

All data in categories | Guidelines | 1. Align services | 2. Support & supervise | 3. Resource | 4. Build core competencies (KSA | 4. Build core competencies(KSA) | 4. tools, modes, for core comps | 5. Create learning stratosphere | 6. Nurture resilience | 7. Strategise & operationalise | 8. SHS Effective referral&care | 8. SHS Data&evide

Figure 10.8: An illustration of each of the colour-coded data categories (columns)



RESOURCES (all data)	Data sorted into categories								
	Clinical guidelines	Electronic knowledge and support platform	Home programmes	Ax & Rx resources	Activity ideas	Access to evidence	Patient-resources	Accessibility & sustainability	Communication resources
Applications to assist with language learning and to support communication	Appropriate guidelines for managing conditions	Application-based clinical guidance tailored to context	Appropriate home programmes	Mobile assessment and treatment resources	Activity ideas	Access to literature /evidence	Development of peer-support services	Identify key role-players who can assist with accessing resources/information around processes	Simple phrase book available in 11 languages suitable for patient assessment and treatement and building rapport
Appropriate guidelines for managing conditions	Principles-driven protocols/algorithms that include the absence of surgery	Open access, app-based repository of multidisciplinary information and resources (clinical guidelines, information on conditions, & home programmes etc)	*Home programme bank	Appropriate hand therapy resources	Guidance for use of materials		Patient app (application) to make information accessible online, book appointments etc	Education for novice therapists on splinting material procurement	Applications to assist with language learning and to support communication
Appropriate home programmes	Clinical guidelines for rural based practitioners by expert hand therapy practitioners with rural based experience & global south evidence; reviewed every few years	Clinical guidelines for rural based practitioners by expert hand therapy practitioners with rural based experience & global south evidence; reviewed every few years	Home programmes	Resources suitable for a diverse caseload including resources for occupation-based therapy				Explore reusable, recyclable, environmentally friendly splinting material	
Mobile assessment and treatment resources	Develop MDT-based SOPs that are app-based, updated with latest info, and downloadable for off-line use standard operating procedures for patient management	Home program repository of evidence-based, illustrated, tried-and-tested and multi-language	Home program repository of evidence-based, illustrated, tried-and-tested and multi-language	Appropriate resources				Improved access to tender products & processes	
Appropriate hand therapy resources	Develop guideline for educating patients	Structured support platform to share and		Resources (including assistive devices and technology)					
Resources suitable for a diverse caseload including resources for occupation-based therapy									
Activity ideas									
Appropriate resources									
Appropriate courses (1)									
Resource support for CPD (eg. leave, finance, travel,									
Hand Therapy resources and equipment									
*Home programme bank									
Principles-driven protocols/algorithms that include the absence of surgery									
Application-based clinical guidance tailored to context									
Network access									
Resources (including assistive devices and technology)									

GUIDELINE STATEMENT

3. RESOURCE: • develop clinical guidelines (principle driven protocols/algorythms) developed by expert practitioners, based on global south evidence, appropriate for rural/remote contexts (including therapy in the absence of surgeical intervention) regularly reviewed and updated and that include guidelines for effective patient education.

•Provide assessment and treatment resources for mobile hand therapy services, that enable an occupation-based approach and can be used for a diverse caseload.• A portable hand therapy station is recommended (with instructions for use of each item) and resources must be available on government tender (including replenishing consummables).

•Develop communication resources to address and compensate for language barriers including language learning and communication support applications, and a simple phrase book (hard or e-copy) available in 11 languages suitable for patient assessment and treatement and building rapport

•Develop home programmes: evidence-based, illustrated, 'tried-and tested', multi-language

•Develop activity ideas for use of activities as a therapeutic modality

•Improve the accessibility of resources by:

- Developing electronic knowledge & support platforms: an online repository or application-based platform with downloadable condition information, clinical guidelines, multi-disciplinary information, language-learning and communication (to assist with language barriers), and home programmes.
- Developing patient resources: peer support services and application ('app') for patients to access information, book appointments etc
- Idenitfying key role-players who can assist with navigating procurement processes and accessing resources
- Educating novice therapists on splinting material procurement processes and accessing tenders

•Enable access to evidence/literature to support evidence-based practice

•Pursue resource sustainability exploring the use of reusable, recyclable and environmentally friendly splinting materials

All data in categories | Guidelines | 1. Align services | 2. Support & supervise | 3. Resource | 4. Build core competencies (KSA | 4. Build core competencies(KSA) | 4. tools, modes, for core comps | 5. Create learning stratosphere | 6. Nurture resilience | 7. Strategise & operation

Figure 10.9: An illustration of the spreadsheet showing each of the categories (separate sheets) and an example of the data in the *Resource* category that was consolidated into Guideline 3 (discussed below)

10.4.3 Guideline statements

Eleven guideline statements were generated and are presented as three groups of recommendations, as depicted in Figure 10.10. Positioned in the centre and background of Figure 10.10 (inner circle), the recommendation to *align services to professional purpose* is an overarching guideline that speaks to the goal and principles that should guide hand-injury care service development. Moving outward, five guidelines (middle circle) relate *directly* to the education, support and resourcing of generalist occupational therapists for hand-injury care. A further five statements (outer circle) target areas for intervention that, if addressed, would *indirectly* support therapists' capacity to deliver hand-injury care. The guidelines are presented and discussed in these three categories. Figure 10.10 captures the focus of the eleven guidelines in an infographic. Following this, the eleven guidelines are presented and discussed in three sections: *align to purpose (guideline 1)*, *equip for effectiveness (guidelines 2-6)*, and *develop sustainably (guidelines 7-11)*. It must be acknowledged that substantial overlap and links exist between the guidelines, but attempts were made to avoid duplication in the presentation of content. The Guidelines constitute the final product produced by this PhD research and recommend specific means by which the capacity of generalist occupational therapists can be strengthened for hand-injury care. The discussion of the guidelines is followed in Chapter 11, by a summary of the implications of the PhD project.

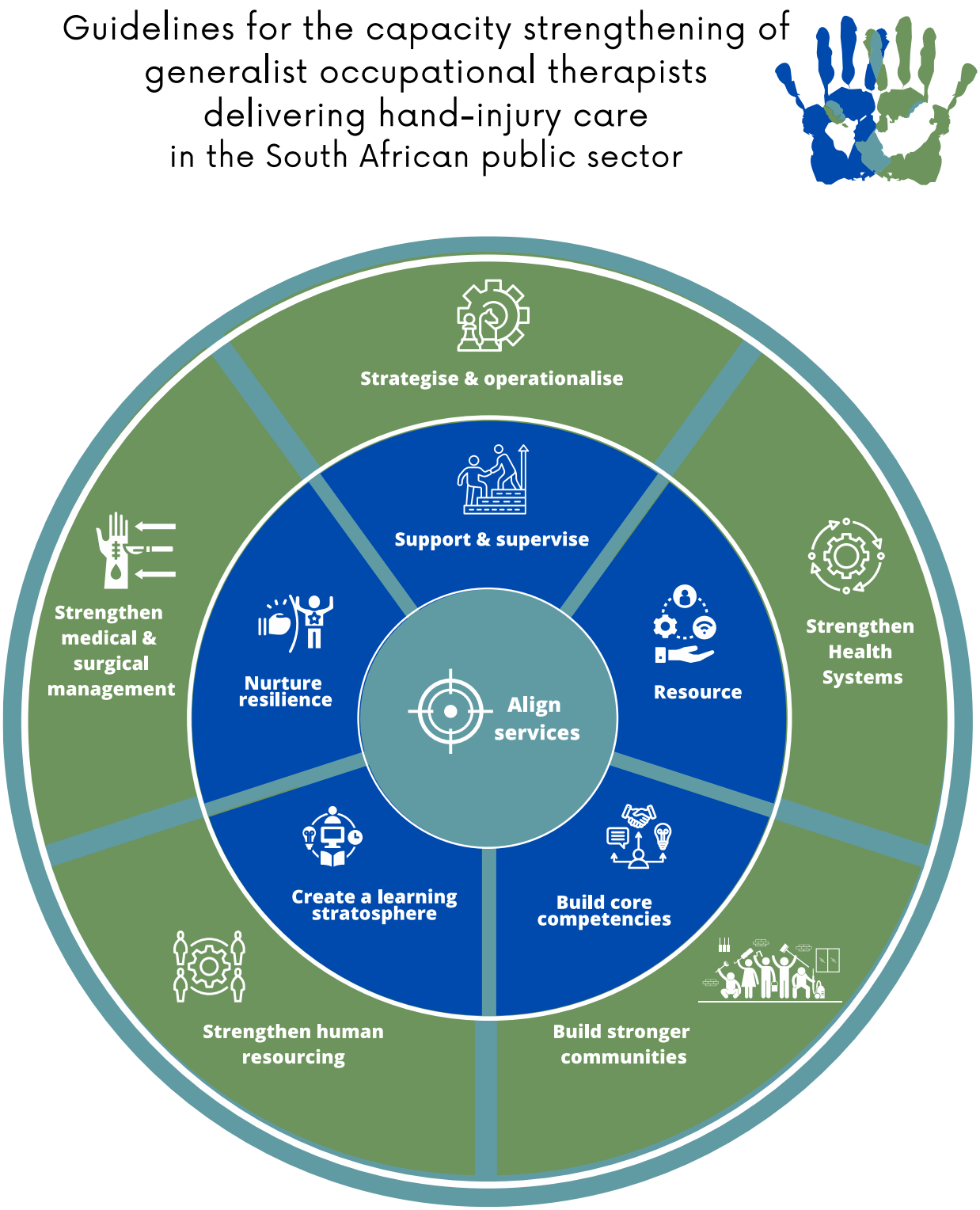


Figure 10.3: Eleven guidelines for the support and development of generalist occupational therapists delivering hand-injury care in the South African public sector

10.4.3.1 Align to purpose: Guideline 1

Table 10.0.5 Guideline 1: Align Services

Contextually responsive capacity strengthening (support and development) of generalist occupational therapists delivering hand-injury care in the South African public sector should:

1. Align services

Align services to professional purpose to:

- Enable therapists to work towards the full participation and social integration of clients with/at risk of hand injuries/conditions
- Increasingly deliver quality care that is equitable, accessible, patient-centred, comprehensive (prevention, promotion, cure, rehabilitative and palliative)
- Deliver occupation-focused therapy that includes work interventions

Guideline 1, captured in Table 10.5, was predominantly generated from the results of Manuscript 3's analysis of policies. The relationship between policy and practice is a reciprocal one implying that the occupational therapy profession must be active in shaping policy, *and* occupational therapy practice must be shaped by policy. A recent scoping review of the intersection between policy and occupational therapy practice found that policy is somewhat poorly reflected in occupational therapy literature despite calls to engage with policy issues as a profession[360]. Literature's call to address policy–practice issues centres around "the ultimate aim of fostering occupational engagement and participation"[360(p.251)], which strongly affirms Guideline 1's recommendation to pursue 'full participation and social integration'.

Definitions of hand therapy published by hand therapy societies online demonstrate an orientation towards the participation and social integration[361,362] of clients with hand injuries and conditions. Is this goal then reflected in the practices of therapists? A local study suggests that this is not the case in South Africa: De Klerk studied the assessment practices of therapists working in hand rehabilitation in South Africa, arguing that assessment practices are reflective of the focus therapists' intervention[270]. She found a predominant focus on the assessment of body function and structure (goniometry, manual muscle testing and flexor tendon function), with (few therapists assessing clients' activity and participation). While a sound application of a biomechanical approach to treating body structure and function in hand therapy is important, the approach in isolation can hinder client-centred care[363] and denies the epistemological fulcrum of the occupational therapy profession and the unique contribution of occupational therapy to hand therapy practice.

Data collection for De Klerk's study of therapists' assessment practices was conducted in 2013, leaving the possibility that practice has shifted to a focus on participation over the last decade. Anecdotally, the outcome measures used in the research presented at the annual South African hand surgery (SASSH) congress suggest that participation and social integration are not yet the ultimate goal of hand-injury care. A workshop at this congress for both therapists and surgeons on the use of the standard set of outcome measures for hand and wrist conditions (developed by the Consortium for Health Outcomes Measurement)[236], *and* how these can be integrated into routine patient evaluation in private and public hand clinics is recommended to address this gap.

Guideline 1 also recommends 'quality care that is equitable, accessible, patient-centred, (and) comprehensive' though limited evidence exists to plot or quantify where hand therapy practice is currently positioned in relation to these service characteristics. We know that equitable service distribution remains problematic for occupational therapy[150], hand therapy[46,176] and hand surgery[46], and access to care, particularly in rural or remote areas, is restricted[49,161]. A South African qualitative study that sought to explore the extent of implementation of primary health care principles in remote rural areas reported substantial challenges to (amongst other things) delivering client-centred care and the provision of health promotion and rehabilitation[364]. Although these results obtained from the experiences of service users, service providers and key informants (n=36) cannot be generalised to all public health care settings in South Africa, we know that the provision of services to populations with, or at risk of disability, is problematic[49]. Literature on prevention and promotion services within hand therapy is sparse. However, the importance of providing these services was highlighted by a survey conducted with USA-based hand therapists in 2018[241] and the need for prevention of hand injuries is repeatedly elucidated in the literature[18,23,28,29,36,37,39–41]. These realities call for reinvigorated commitment to equitable, accessible and comprehensive services. Strengthened by collaborative partnerships, the South African hand therapy and hand surgery society has a responsibility to strategically consider how services can be re-balanced to ensure that basic hand-injury care is available to all.

Limited and sometimes outdated evidence makes evaluating hand therapy practice in relation to *Guideline 1* difficult, but available evidence suggests that we have a long way to go. *Quest,* a quality evaluation strategy recently launched by the World Federation of Occupational

Therapists, emphasizes the that measuring quality indicators is essential for demonstrating the value of occupational therapy intervention[365]. This is essential in the South African healthcare context with the implementation of National Health Insurance[69] which demands evidence of the value and efficacy of interventions for financing occupational therapy services. Developing therapists' competency and professional culture of quality evaluation may be facilitated by The South African Society of Hand Therapists' offering courses for therapists to collaboratively equip themselves to build routine quality evaluation into their practice.

Finally, hand therapy that is occupation-focused and that includes work interventions is recommended. Occupation-focused care lies at the philosophical core of occupational therapy practice and evidence is growing to support the efficacy and utility of this approach, used alongside biomechanical approaches, in hand therapy. Local research endeavours focused on work transition after hand injury[238], workplace-based rehabilitation[366], return to work interventions after hand injury[367], and self-employment for people with disabilities[368] echo the importance of including work interventions in intervention. Considering the eighth sustainable development goal of *decent work and economic growth*[291], these research efforts and implementation of their findings should continue and be expanded. Addressing participation in work should be part of standard practice with working-age clients, and interventions to equip generalist occupational therapists for work practice[47] should continue. Robust learning and development opportunities to support work practice must be offered across the life-long learning continuum.

10.4.3.2 Equip for effectiveness: Guidelines 2-6

Guidelines 2-6, captured below (see Table 10.6), speak to generalist occupational therapists' direct needs for support and supervision, resources, basic competencies for hand therapy, rich learning opportunities to support the development of these competencies, as well as resilience. All of these aspects speak to therapists being equipped to effectively deliver hand-injury care services, and each aspect is discussed below.

Table 10.0.6 Equip for effectiveness: Guidelines 2-6

Contextually responsive capacity strengthening (support and development) of generalist occupational therapists delivering hand-injury care in the South African public sector should:

2. Support and supervise:

Strengthen the support and supervision offered to generalist occupational therapists by:

- Responding to graduate's need for Community Service preparation and junior therapists' need for induction and role modelling.
- Enabling the development of knowledge, skill, clinical reasoning and lifelong learning practices through support and supervision.
- Providing access to expertise through real-time support and supervision.
- Implementing mentorship programs (within or beyond service clusters), communities of practice, courses, seminars, case discussions, and face-to-face networking opportunities.
- Providing capacity strengthening opportunities for supervisors and mentors to develop practices that are responsive to supervisee/mentee needs and that facilitate the development of clinical reasoning.
- Consider the psychological support needs of vulnerable therapists.
- Providing opportunities for therapists to be mentored in research.

3. Resource:

Provide resources to equip therapists for hand therapy, including:

- Developing clinical guidelines (principle driven protocols/algorithms developed by expert practitioners), based on global south evidence, appropriate for rural/remote contexts (including therapy in the absence of surgical intervention), which are regularly reviewed and updated, and that include guidelines for effective patient education.
- Providing assessment and treatment resources for mobile hand therapy services that enable an occupation-based approach and can be used for a diverse caseload.
- Providing a portable hand therapy station (with instructions for use of each item), stocked with resources available on government tender (including replenishing consumables).
- Develop communication resources to address and compensate for language barriers including language learning and communication support applications, and a simple phrase book (hard or e-copy) available in 11 languages suitable for patient assessment and treatment and building rapport
- Develop home programmes: evidence-based, illustrated, 'tried-and tested', multi-language
- Develop activity ideas for use of activities as a therapeutic modality
- Improve the accessibility of resources by developing electronic knowledge & support platforms (for example: an online repository or application-based platform with downloadable condition information, clinical guidelines, multi-disciplinary information, language-learning and communication (to assist with language barriers), and home programmes
- Developing patient resources: peer support services and 'app' for patients to access information and book appointments
- Identifying key role-players who can assist with navigating procurement processes and accessing resources
- Educating novice therapists on splinting material procurement processes and accessing tenders
- Enable access to evidence/literature to support evidence-based practice
- Pursue resource sustainability exploring the use of reusable, recyclable and environmentally friendly splinting materials

4. Build core competencies

Build core competencies for hand therapy, including:

- A renewed commitment to genuine care & patient-centred practice
- Client-centred (rather than disease-centred) care that integrates a holistic view of the client and their environment (including support structures, financial implications, burden of care etc.) and knowledge of the community (resources, types of work, cultural practices, stigma etc.).
- Collaborating with patients for goal setting and therapy direction
- Integrated clinical reasoning and a problem-solving approach built on knowledge of basic sciences (anatomy, physiology & pathology), knowledge of the patient, sound assessment & basic treatment techniques
- Occupation-based therapy
- Communicating and exercising the contribution of occupational therapy within and beyond the healthcare setting
- Communication in local language (basic proficiency) and working with an interpreter
- Empathic communication that transcends language, age and culture etc.

- Facilitating patients' understanding of their role in recovery and supporting them in being active and empowered service users
- Effective patient education
- Supporting adherence
- Splinting
- Organizational skill and prioritization
- Note keeping that supports service continuity and improved patient care
- Life-long learning: being open to learning, asking for help, identifying and prioritizing own learning needs
- Reflective and reflexive practice that is enacted through a critical posture and humble disposition reflects on attitudes to strengthen patient interactions and therapeutic relationships.
- Emotional intelligence
- Resilience
- Confidence to take the clinical lead in the hands MDT
- Ubuntu-informed collegiality: exercise an orientation towards the collective (eg. team) rather than the self, be approachable and transparent, support and consider the perspectives and challenges of colleagues, along with your own, assume responsibility and take action to contribute to a collective difference

5. Create a learning stratosphere

Create a learning stratosphere by constructing rich, accessible learning opportunities across the life-long learning continuum:

Undergraduate:

- Strengthen undergraduate learning opportunities that foster enjoyable, engaged and active learning, that build confidence/self-efficacy, and develop a basic competence for hand therapy

- Establish **strong theoretical foundations** that:
    - Integrate foundational knowledge: anatomy, biomechanics, tissue healing, the structures and functions of the hand, and key performance skills
    - Facilitates a clinical reasoning approach
    - Enables an occupational focused and activity-based intervention
    - Develops essential assessment and evaluation knowledge and skill (including psychosocial)
    - Includes wound healing, wound care and scar management
- Includes understanding of basic hand conditions
- Develops essential knowledge and skill for treatment
- Includes a basic understanding of the impact of trauma and processing loss
- Considers environmental level actions /interventions
- Considers the role and involvement of family
- Ensure opportunities for students to translate their knowledge and skill to practice (and expand their knowledge & skill) through authentic, enjoyable, low-stakes practical skill and fieldwork/clinical opportunities within both the public and private sector
- Hand therapy teaching should potentially be presented as a separate module, should include case presentations and practical skills sessions, and should be presented/co-presented by therapists with clinical hand therapy experience
- Hand therapy topics should be included in undergraduate research
- Student should be nurtured in managing their anxiety and developing resilience across learning experiences

Postgraduate:

- Strengthen postgraduate hand therapy education through offering an accredited, modular, postgraduate hand therapy course which can be accessed as single modules, a postgraduate diploma (portion of the modules), or a MSc (10 modules and research report)

In-situ learning strategies:

Support the development of lifelong learning, and lifelong learning practices through

- Regular opportunities to develop knowledge and skill
- Providing guidance, feedback and support for the development of knowledge, skill and clinical reasoning
- Use of case discussions to share knowledge & develop support
- Use of journal clubs to support evidence-based practice
- Use of case presentations with MDT across levels of care to develop hand management expertise across the referral pathway
- Provision of in-service training within clusters in public sector (theory & practical)
- Provision of practical skills training in every province that is responsive to local needs and resources
- Support for accessing appropriate evidence
- Mentorship
- Equipping specialist generalist (eg. Project ECHO Model) who share their expertise with other generalists

Courses:

Offering of appropriate courses tailored to local demographics and burden of disease which may include (but not limited to):

- An emphasis on wound healing and oedema management to prevent secondary complications
- Management of acute conditions & injuries, chronic hand condition burnt hand , fractures and stroke upper limb
- Clinical reasoning for determining disability grant eligibility
- Supporting patient adherence
- Strengthening resourcefulness, creativity & innovation
- Occupation-based hand therapy
- Understanding indigenous occupations & drawing them into therapy
- Training in contemporary, relevant technologies eg. 3D printing
- Environmental level actions/interventions

- Therapists should be supported in accessing the resources for attending continuous professional development activities (e.g. in terms of leave, finance, travel and accommodation)
- Facilitate the development and maintenance of core competencies through the use of:
  - Supported individual and group reflection
  - Case discussions
  - Case presentations
  - Journal Clubs
  - In-service training within clusters
  - Courses and seminars
  - Individual and group mentoring (e.g. mentorship program led by a clinical lead in the service cluster)
  - Communities of practice (in-person, virtual, hybrid)
  - Critical reflexivity facilitated in communities of practice
  - Application-enabled groups of clinicians (e.g. *WhatsApp*)
  - Opportunities to participate, and ne mentored in research

6. Nurture resilience

Nurture therapists' self-development towards professional strength, flexibility and well-being, by:

- Supporting therapists' development of agency
- Supporting therapists in processing their practice experiences through sharing and debriefing
- Support therapists in developing resilience, including managing anxiety, self-regulation, coping strategies, building support networks, self-care, respecting personal limitations and establishing realistic expectations of self, and normalising feelings of anxiety

Guideline 2: Supervision and support

Ranked by the consensus development study stakeholders as the most pressing need of generalist occupational therapists, supervision and support require urgent attention. In section 2 of this chapter, it was noted that generalist therapists operate between the levels of novice or advanced beginner to 'experienced non-experts'. Supervision and support models thus need to respond to this range of expertise for hand therapy.

Nursing scholars recently conducted a scoping review of supervision models relevant to nurses practising in rural and remote contexts. The review was conducted because nurses in these contexts receive little preparation for the advanced practice they are required to conduct in often stressful conditions. They work as generalists and require support in developing their confidence and competence[131]. This strongly mirrors the experience of generalist occupational therapists in South Africa. The reviewers used a competency-based model of supervision[369] to analyse the 11 articles included in the analysis. This model highlighted observation, evaluation, feedback, facilitation, instruction, modelling, mutual-problem-solving and self-efficacy as key features of supervision[131]. The eleven supervision models analysed provided useful features for supervision, which the reviewers combined into a hybrid model (see Figure 10.11) that they present as a step towards developing a model suited to the supervision needs of rural and remote nurses. The model involves a pre-supervision short course for both supervisor and supervisee and uses facilitated reflection within group supervision, case note checks, on-demand distance support, and in-person support[131]. The model offers features well suited to the needs and clinical contexts described in this study: supervision capacity strengthening via a pre-supervisor short course, use of facilitated group reflection, and immediate support via video conferencing and in-person meetings. Although nursing scholars, the process that is proposed in the model is not specific to nursing practice. While the model requires validation and piloting, it offers a promising guide to supervising generalist occupational therapists in South Africa.

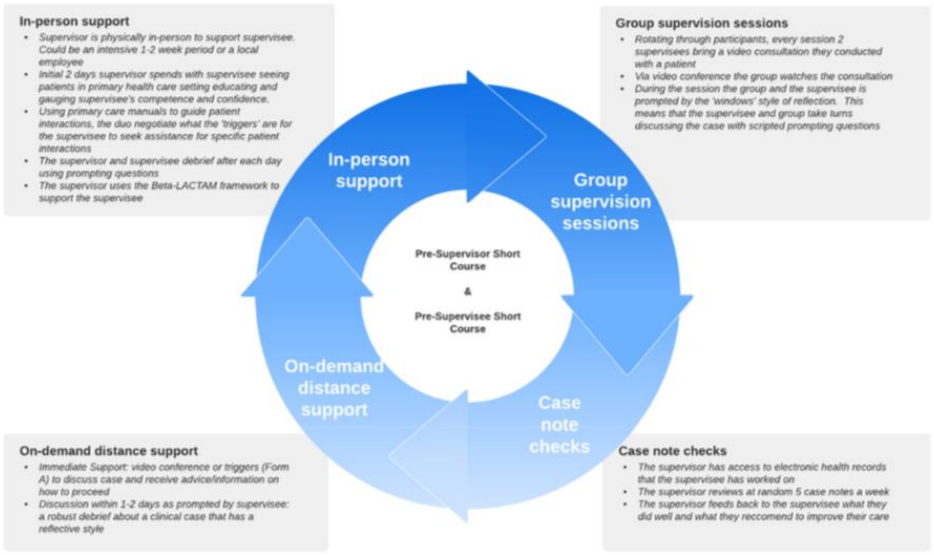


Figure 10.11: Clinical Supervision Hybrid Models for remote area nurses[131] (p.835)

Notably, considerations for culturally safe practice were missing from the models (n=11) reviewed by Hildebrand and colleagues, which they highlight as an essential feature of rural and remote practice[131]. Given the diversity across South Africa (not only in rural and remote regions), intentionally building mechanisms to develop culturally safe practices should be considered.

While supervision is a consideration for human resourcing strategies and should be the primary responsibility of the Ministry of Health, key roles for the Occupational Therapy Association of South Africa (OTASA) and potentially Rural Rehabilitation South Africa (RURESA) exist to expedite short-term, if not pragmatic, solutions and collaborate towards long-term sustainable human resource planning.

Guideline 3: Resource

Ranked as the second most pressing need of generalist occupational therapists in the consensus development process, developing resources arguably represents 'low-hanging fruit' when it comes to the implementation of guidelines. However, creating resources requires resources: time, money, expertise, organization and coordination. International scholars stress that solutions should improve care for hand injuries and should be based on local knowledge[27]. While resources are severely constrained in some sectors, provinces,

districts or facilities, South Africa has many of its own resources and rich knowledge sources on which to draw, as well as the opportunity to share resources with international colleagues. In light of the need for universal health care, high-quality open-access resources should be pursued with creative means leveraged to finance resource development. Embedding the revision or 'upkeep' of resources into functions of already existing professional organisations will ensure sustainability and ongoing relevance of resources.

An example of a resource that could collaboratively be developed by a number of the above stakeholders and would address a number of the resource recommendations is the development of a hand-injury care internet *forum* or online communities. An internet forum is a website that facilitates the exchange of information about a specific topic[370]. The idea of a forum was recently shared by one of the consensus development stakeholders who has done extensive work to increase access to hand-injury care in KwaZulu Natal Province. A smartphone application-based forum or online community can have numerous capabilities that facilitate community interaction, individual and group chat functions, the sharing of content, and video conferencing. Some software options offer a curriculum builder, can host online courses, quizzes, and resource repositories, and allow content download[371]. Applications are often able to host sub-communities[371] allowing members from different sectors, geographical or professional groups to form their own communities of practice, including communities for service users.

While *Guideline 3's* recommendations invite practitioners to innovate and share resources to address often simple practice needs, leadership and management in the profession are needed to sustainably secure the essential resources required for serving underserved communities in South Africa.

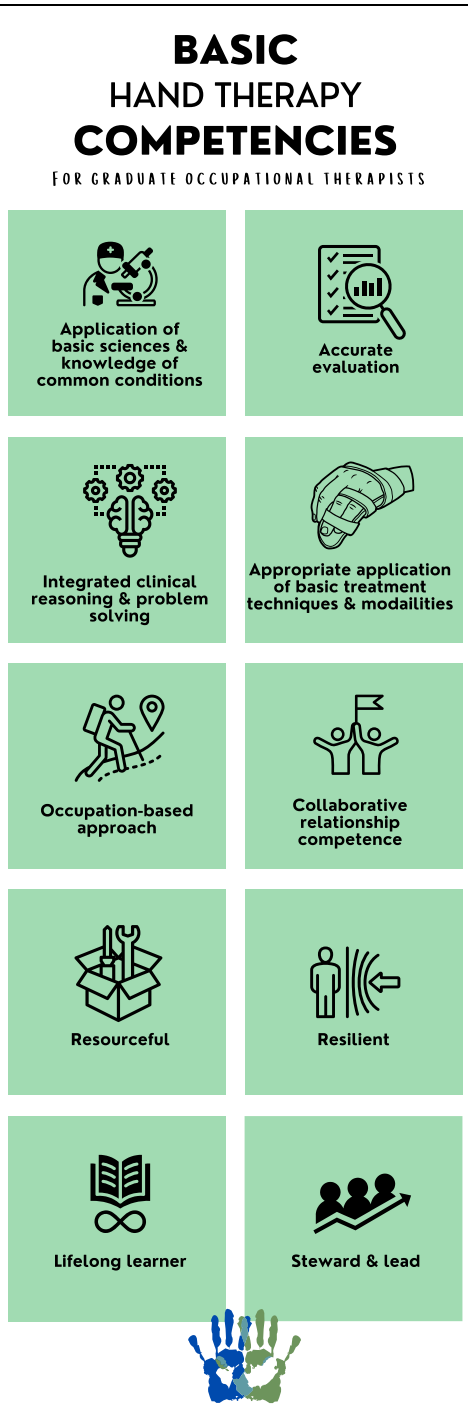
Guideline 4: Build core competencies

Guideline 4 provides a list of competencies considered essential for generalist occupational therapists for hand-injury care. This is not the first iteration of such a list: a survey conducted of undergraduate hand therapy curricula at South African Universities in 2014 proposed eight graduate characteristics and competencies that hand therapy curricula should develop[100] and are listed in Table 9, placed alongside the recommendations outlined in *Guideline 4*. Substantial similarity can be seen between the competencies suggested in 2014 and this PhD

study. This study has added “resilience” and “to steward and lead” as key competencies. A revised list of competencies, that combines the 2014 and Guideline 4 lists is presented in the final column of Table 10.7 as an infographic and warrants robust consideration in future. A competency not made overt in the 2014 study but implied by *Guideline 8* is collaborative teamwork. This is a core competency and should be appropriately captured under *collaborative relationship competence*[372].

Ideally, these competencies should be developed during undergraduate education, but they also need to be maintained. South African expert educators advise that health professions education be viewed ‘as a continuum into early professional life, rather than a series of discrete, uncoordinated periods of development’[372(p.177)]. They also advise, as an action of social accountability, that Universities maintain the learning and development continuum until the end of the Community Service year[372]. This is a steep expectation, but one that could be achieved through strategic and innovative actions.

Table 10.7: Revised occupational therapist graduate competencies for hand therapy

2014 Proposed graduate characteristics and competencies[100]	Recommendations generated by this study	Revised occupational therapy graduate competencies for hand therapy illustrated as infographic
1. Accurate assessment 2. Application of basic sciences & hand intervention principles 3. Competence in appropriate modalities for common conditions 4. Sound clinical reasoning	• Integrated clinical reasoning and a problem-solving approach built on knowledge of basic sciences (anatomy, physiology & pathology), knowledge of the patient, sound assessment & basic treatment techniques • Splinting • Note keeping that supports service continuity and improved patient care	
5. Occupation-based approach	• Occupation-based therapy	
6. Collaborative relationship competence	• A renewed commitment to genuine care & patient-centred practice • Client-centred (rather than disease-centred) care that integrates a holistic view of the client and their environment (including support structures, financial implications, burden of care etc.) and knowledge of the community (resources, types of work, cultural practices, stigma etc.). • Collaborating with patients for goal setting and therapy direction • Communicating and exercising the contribution of occupational therapy within and beyond the healthcare setting • Communication in local language (basic proficiency) and working with an interpreter • Empathic communication that transcends language, age and culture etc. • Facilitating patients' understanding of their role in recovery and supporting them in being active and empowered service users • Effective patient education • Supporting adherence • Emotional intelligence • Reflective and reflexive practice that is enacted through a critical posture and humble disposition reflects on attitudes to strengthen patient interactions and therapeutic relationships.	
7. Resourcefulness		
	• Resilience	
8. Lifelong learner	• Life-long learning: being open to learning, asking for help, identifying and prioritizing own learning needs	
	• Confidence to take the clinical lead in the hands multidisciplinary team • Ubuntu-informed collegiality: exercise an orientation towards the collective (eg. team) rather than the self, be approachable and transparent, support and consider the perspectives and challenges of colleagues, along with your own, assume responsibility and take action to contribute to a collective difference • Organizational skill and prioritization	

Guideline 5: Create a learning stratosphere

Borrowing the term given to one of the multi-ringed atmospheric layers surrounding the earth, generalist occupational therapists will be well served by being surrounded by a learning

stratosphere - layers of rich learning opportunities. While these learning opportunities by no means guarantee competence, they promote it by offering contextually responsive educational offerings. While each 'layer' of learning opportunities (undergraduate, postgraduate, in-situ opportunities and continuous professional development) warrants discussion, exploring directions for undergraduate curricula will be explored in this section.

Before considering undergraduate curricula, it is prudent to consider a number of contextual features and various key directives for health professions education. The influential Lancet Commission Report on the future of Health Professions Education highlights the purpose of health professions education reform as being to "assure universal coverage of the high-quality, comprehensive services that are essential to advance opportunity for health equity within and between countries"[372,373(p.1924)]. Patient-centred practice and integrated community-based care are identified as two approaches essential to achieving this equity. The Commission's vision is that:

> "All health professionals in all countries should be educated to mobilise knowledge and to engage in critical reasoning and ethical conduct so that they are competent to participate in patient and population-centred health systems as members of locally responsive and globally connected teams" [95(p.1924)].

The Commission proposes that *transformative learning* and *interdependence in education* facilitate educational reforms. The latter necessitates the following: for education and health systems to move from isolation to harmonization; for institutions to shift from solitary programs to "networks, alliances and consortia"[95(p.1924);] and for institutions to move from "inward-looking educational pre-occupations to harnessing global flows of education content, teaching resources and innovation" [95(p.1924)]. These radical shifts are mirrored in the Commission's recommendation of transformative learning. While science-based curricula at the start of the century used informative learning to facilitate the acquisition of knowledge and skills to produce experts, a mid-century shift towards problem-based instruction that used formative learning to socialise students around values and develop professionals. The Commission proposes that the next shift needs to be to transformative learning that seeks to develop leadership attributes in order to produce "enlightened change agents" [95(p.1924)]. These directives give us pause to critically reconsider how we craft future hand-injury care

curricula.

A local consensus study commissioned by the Academy of Science of South Africa (ASSAF) produced a report on *Reconceptualising Health Professions Education in South Africa* in 2018 that provides further guidelines for the development of hand-injury care curricula. Drawing extensively on the Lancet Commission report, the authors highlight a number of problems in health professions education: the use of disjointed and old curricula that poorly prepare graduates, an over-emphasis on technical skill at the expense of contextual understanding, poor teamwork and 'professional tribalism', limited focus on community-based services, and little attention to continuous care[372,373]. The ASSAF report highlights the need to consider population health needs viewed through the lens of the social determinants of health and to strengthen the multidisciplinary delivery of care[372].

Additionally, this ASSAF report strongly advocates for inter-professional practice as an enabler of transformative learning and as a means to strengthen client-centred care and the health system. They recommend a bio-psycho-social-spiritual approach to care that can be pursued by using the ICF (International Classification of Functioning, Disability and Health) as a common framework to support communication, clinical reasoning and decision-making in the team. The report further describes a competency-based approach to training and articulates the following core competencies for health professionals: *collaborative practice, health advocacy, healthcare practice, information and communication, management and leadership, professionalism, and research and scholarship.*

In addition to considering these directives for health professions education, an important aspect of the current hand therapy context in South Africa needs to be taken into account. In a recent commentary published in the South African Journal of Physiotherapy, Keller[374] highlights the decline of the physiotherapist's role in hand therapy over the last two decades, attributing this in, in part, to physiotherapists' exclusion from the Diploma in Hand Therapy previously offered by the University of Pretoria. Keller advocates for pursuing multidisciplinary and inter-professional hand therapy practice and creating future education opportunities that include both occupational therapy and physiotherapy. Contention within the South African hand

therapy community around the inclusion of physiotherapists in postgraduate offerings exists attributed to the fear of some occupational therapy private practitioners that physiotherapists with postgraduate hand therapy training will increase competition in the private hand therapy community. While this fear is acknowledged, the Lancet Report's mandate to orientate health professions education around achieving universal health coverage and service equity strongly supports Keller's argument.

Taking all these considerations into account in *creating a learning stratosphere*, the development of a multi-disciplinary hand-injury care curriculum for undergraduate health professionals, which is a Creative Commons licenced open educational resource, is recommended as a priority application of *Guideline 5.* This will require diverse expertise, collaboration between numerous stakeholders, and substantial funding, but it stands to extend the impact of implementation far beyond generalist therapists in South Africa and contribute to global capacity strengthening for hand-injury care.

Guideline 6: Nurture resilience

Repeated references to the resilience of generalist occupational therapy hand therapists emerged throughout this project, and it is therefore not surprising that they are reflected in the final guidelines. Yet one may still be inclined to ask, "what does resilience have to do with hand injury care?" An explanation from an educator from a completely different field is helpful in illustrating the link. Davies, a sustainability scholar, routinely presents educational content about the global ecological crisis to students, including resource depletion, pollution, climate disruption, and biodiversity loss. She explains: "…This information is often deeply troubling to students…some feel overwhelmed or afraid. Others experience despair, grief and other painful emotions. As a result, they lose almost any sense of resilience or agency" [375(p.175)]. She explains that discussing policies and mitigating interventions often do little to comfort students as they begin to appreciate the scale of the global ecological crisis[375]. Many of these emotions were mirrored in the experiences of community service and independent practitioners delivering hand-injury care as generalists, albeit related to patients' trauma, socioeconomic circumstances or inadequate health resources.

Davies continues to explain her response:

> " I have learnt that I must do more than just present scientific and technical information. I must also cultivate students' capacity to be resilient and to engage in the world in positive and constructive ways…ignoring this aspect of sustainability education seems at best irresponsible and at worst unethical" [375(p.175)].

The abundance of recent resilience literature lends credence to Davies' conviction. While conceptualisations of resilience vary, it has been defined as "the maintenance or quick recovery of mental health during or after periods of stressor exposure, which may result from a potentially traumatising event, challenging life circumstances, a critical life transition phase, or physical illness"[376]. A pre-COVID-19 Cochrane review was undertaken to evaluate the effectiveness of psychological interventions for fostering resilience in healthcare professionals. While gaps in medium and long-term data were reported, very low-level evidence supported greater resilience and various resilience factors after intervention along with lower levels of depression, stress or stress perception[376]. A scoping review conducted during the COVID pandemic explored how to nurture resilience in frontline workers[377] sustainably. This review looked beyond just psychological interventions and articulated pre-COVID and within-pandemic interventions. The former included resilience training, education, and training to nurture a sense of preparedness. Recommendations during COVID had a broader focus and included effective provision of information, psychosocial support (e.g. nurturing peer support and celebrating successes) and intervention, and monitoring professionals' health status. In addition the nature (weight and intensity) and mix of tasks and responsibilities was a focus for intervention as well as work conditions and work patterns[377]. The latter acknowledge task demands and environmental conditions as an essential consideration for resilience which aligns with this project's Person-environment-occupation[63] conceptual framework that necessitates the consideration of transacting factors. While a more comprehensive review of the literature is necessary, a holistic consideration of personal, task (occupation), and environmental factors should guide the crafting of appropriate interventions.

In addition to maintaining a holistic focus, an appreciation of the conceptual diversity (influenced by culture, worldview and research paradigms) of agency[378] and resilience[379] needs to be acknowledge as interventions are designed and tested.

10.4.3.3 Develop sustainably: Guidelines 7-11

Guidelines 7-11 (see Table 10.8) speak to addressing needs more peripheral to generalist occupational therapists' practice, but areas that have a substantial indirect impact on their delivery of hand-injury care, including the need for sound strategy and operations, strengthened health systems and human resourcing, stronger communities, and improved medical and surgical management of hand injuries and conditions.

Table 10.8: Develop Sustainably: Guidelines 7-11

Contextually responsive capacity strengthening (support and development) of generalist occupational therapists delivering hand-injury care in the South African public sector should:

7. Strategise and operationalize

Strategise and operationalise for effective service delivery, through:

Strong leadership and governance that:

- Is responsive and anticipatory
- Implements occupational therapy human resourcing in other public sector departments
- Utilising networks and partnerships (local and international, across sectors, and between scholars and clinicians)
- Establishes leadership for hand therapy service development and support
- Strengthens mentorship for occupational therapists (including incentivising)
- Establishing practice frameworks for occupational therapists, occupational therapy assistants, and occupational therapy technicians

Effective management that:

- Operationalizes leadership and governance strategies
- Addresses the financing of services, leveraging larger budgets for therapy
- Facilitates improved data collection to advocate for post and budget increases
- Increases access to therapy (particularly in rural/remote/underserved settings) by increasing the number of posts in the public sector
- Addresses rehabilitation needs and requirements for infrastructure (including facility planning and design) and equipment
- Ensures provision tools and materials for therapy
- Enables network access for all therapists
- Addresses procurement difficulties and leverages tender processes optimally
- Improve leadership and management skills transfer
- Plan for the impact of load shedding on services and training
- Provides training in Department of Health Systems, resources and government-based training opportunities
- Improves access to healthcare records to respond to patient migration
- Supports service continuation through effective knowledge transfer in hand-overs
- Provides orientation to policies and procedures for junior staff (e.g. supply-chain management, ordering, human resources)
- Support the continuous professional development of therapists
- Implementation of profession-specific monitoring and evaluation
- Provides comprehensive and clearly defined packages of care across all levels of care
- Provides adequate profession-specific supervision
- Ensures that novice therapists work in a multidisciplinary team that provides mutual learning and support
- Explores that use of telehealth and develops guidelines for this service
- Supports a data registry or cross-sectional studies that are POPI Act and HPCSA compliant

Advocacy and awareness raising that:

- Raises awareness around the existence and availability of rehabilitation and hand therapy services
- Advocates for appropriate the level of evidence required for NHI. (I.e. Level 1 evidence is often impractical & unethical in general day to day clinical practice)
- Garners support, through use of evidence, for the prevention and treatment of hand injuries

8. Strengthen health systems

Strengthen health systems for effective service delivery through:

Strengthening referral and care pathways for seamless care by:

    - Strengthening multidisciplinary referral routes & communication channels across levels of care within and beyond service clusters, fostering a sense of community and cohesion within each cluster
    - Implementing standardized pro-forma referral documents including all information necessary for case discussion, standardized assessment forms etc.
- Developing region/area-specific algorithms for referrals to tertiary care. Algorithms can be condition-specific and include ideas for treatment prior to referral
- Strengthen intra-hospital multidisciplinary referrals through education on the role of the occupational therapist (presentations, on ward-rounds, during case discussions)
- Using a situation-specific, team problem-solving approach to collaboratively solve referral problems and intricacies

Strengthening intra and inter-disciplinary action and cohesion by:

- Strengthening cohesion and collegiality within the occupational therapy profession
- Affirming & establishing the role of the specialist & the generalist: acknowledging strengths of generalists and specialists and managing expectations of 'specialists' of 'generalists'
- Enabling access to expert support, guidance and feedback for complex cases, and assistance with ethical prioritization
- Enabling expert support that is accessible in real-time
- Facilitating induction and role-modeling for junior therapists
- Therapists with expertise leading by example, being open to teach during sessions, nurturing a passion for hand therapy by what you do as a supervisor and how you do it
- Occupational therapists being confident to take a clinical lead for hands in the multidisciplinary team
- Therapist s advocating for their patients and attend ward rounds to give feedback
- Strengthening the role of the physiotherapist in hand therapy
- Defining the scope of practice for physiotherapists, occupational therapists and other team members (occupational therapy assistants and technicians etc.) with consideration for interprofessional practice
- Training therapists in an interprofessional environment to prepare them for interprofessional practice
- Equipping specialist generalists who share expertise with other generalists on a specific condition [Project ECHO model]
- Establishing team cultures that are orientated to patient-centred learning and development
- Adopting a service orientation within and across service clusters and develop situation-specific strategies within services to foster seamless services
- Establishing networks and partnerships
- Strengthening cohesion and collegiality within the hand-injury care multi-disciplinary team
- Developing cohesive multidisciplinary teams orientated towards patient outcomes/goals, and characterised by shared power, mutual respect and a regard for each members' contribution
- Enabling access to clinical notes (enabled by effective system) from specialist intervention to community care to enable seamless continuity of care
- Providing support and education for all health professionals (OT, PT, Nurse, Doctor) delivering hand-injury care at a primary (or lower) level of care to improve patient outcomes and prevent secondary complications e.g. sepsis
- Establishing and developing hand clinics on Global South evidence
- Engaging in regular MDT ethics and clinical case discussions

Data and evidence that supports service improvement by:

- Enabling good record keeping and statistics for service delivery and policy development
- Collecting quality, uniform (comparable) data, on burden of disease and outcomes, across facilities.
- Enabling appropriate access to data for service improvement
- Using statistics on local burden of disease to inform continuous professional development within service clusters
- Gathering evidence from service users to support the role of the occupational therapist
- Conducting routine patient evaluation of their experience of therapy and the achievement of therapy goals
- Building capacity and provide resources to support therapists in conducting clinical research
- Increasing high quality research to support the practice of undergraduate, community service and independent practitioners
- Translating the work done by occupational therapists in rural, remote and underserved (e.g. clinics) settings into acceptable form of evidence for NHI
- Producing high quality, contextually relevant evidence
- Partnering with institutions (academic and clinical) to collect quality data and deliver quality hand therapy, progressively learning and adjusting
- Actively involving interested therapists and therapy assistants in research related to their work

9. Build stronger communities

Build stronger communities through an intersectoral systems approach by:

- Targeting systemic development

- Utilising intersectoral action
- Work with multiple sectors (intersectoral collaboration) and stakeholders to address the social determinants affecting patient outcomes e.g. work, transport
- Implementing environmental level actions and interventions

- Supporting the empowerment of clients and communities
- Raising awareness around rehabilitation
- Developing decentralised, balanced services across all levels of care
- Improving access to transport for patients to attend follow-up
- Use evidence to develop and garner support for hand-injury prevention
- Improves surgical outreach services to rural areas
- Develop partnerships between public and private sector to extend hand therapy services
- Pursue ethical, sustainable and environmentally conscious hand therapy practice
- Strengthen resources for improved collaboration with employers to improve patient outcomes
- Adopt a Community-based rehabilitation (CBR) approach
- Integrate the role and needs of the family into therapy
- Support development of peer- and community-based patient support

10. Strengthen human resourcing

Strengthen human resourcing by:

- Human resourcing to respond to the demand for occupational therapy (and hand therapy) by increasing posts in the public service that enables a decentralization of services and improves service accessibility
- Student selection by universities to reflect national demographics in order to reduce pervasive language discordance
- Training and employers interpreters in clinical settings
- Establishing and maintaining a vital workforce

- Implement human resourcing retention plan that will ensure that every Community Service occupational therapist as an on-site occupational therapy supervisor
- Human resourcing strategy and operations to attend junior therapists' need for responsive and accessible (immediacy and proximity) expertise
- Human resourcing to attend to the need for environmental level actions and interventions by occupational therapists

11. Strengthen medical and surgical management

Strengthen the medical and surgical management of hand injuries and conditions by:

- Improving the basic management of hand injuries/conditions
- Strengthening of hand surgery services
- Improving surgical outreach services to rural areas

Strategise and Operationalise (Guideline 7) speak to the need for effective leadership and governance, management, advocacy and awareness raising. Although all five of the guidelines in this group may be considered essential to strengthening health systems, *Guideline 8* (*Strengthen health systems)* addresses three components of the health system that require urgent attention for hand-injury care: referral and care pathways; intra- and interdisciplinary action and cohesion; and data and evidence for service improvement. Although expressed as separate guidelines, the need to *strengthen human resourcing (Guideline 10)* and the *medical and surgical management of hand-injuries (Guideline 11)* are also essential aspects of the health system requiring attention to improve hand-injury care and enable the group of therapists that commonly deliver rehabilitation to those with hand injuries and conditions. Finally, the recommendation to *build stronger communities (Guideline 9)* highlights the need for intersectoral action

and collaboration. These guidelines have been discussed, albeit in slightly different categories, in Manuscripts 6 and 7.

This section therefore, aims to take a broader view of these five guidelines in order to consider how we re-calibrate our actions going forward and the process we adopt to *develop sustainably*. The Head of Global Surgery at the University of Cape Town, Prof Salome Maswime, was recently quoted as saying: "No one taught me how to treat a sick health system"[380]. This resonates with guidelines 7-11: while the former set of guidelines speaks to enabling generalist therapists to treat *sick hands,* the latter guidelines speak to addressing a *sick system*: conditions, weaknesses and gaps in the health systems *and beyond* that hinder and undermine care. Failure to address our sustainable development going forward will markedly stunt attempts to develop the capacity of generalist occupational therapists for hand-injury care.

Re-calibrating to develop sustainably

In Study 2B Sassy-for-the-sake-of-the-service talked about the absurdity of the health system being 'the bucket for all social ills' and highlighted the need for a whole-of-society (WOS) approach to health[286]. But "primary health care is a whole-society approach to health"[381](p. 792) so why are we "stuck in the mud"[148] of broken systems? While the answer is inevitably complex, Chotchoungchatchai and colleagues' explanation is substantially reflected in the guidelines that this study has generated. They quote the 2018 Astana Declaration in clarifying the purpose of primary health care as threefold:

1. Meeting the health needs of a population across the life course through promotive, protective, preventive, curative, rehabilitative and palliative healthcare services
2. "Systematically addressing the broader determinants of health including social, economic and environmental contexts through evidence-informed public policies and multi-sectoral action" 381(p.792)
3. Creating opportunities for individuals, families and communities to optimize their health and including 'self-carers' and caregivers in the co-development of health and social services

Hand–injury care locally and internationally has almost exclusively pursued curative and rehabilitative service delivery, while promotive and preventive interventions remain under-addressed, despite the need for this intervention being repeatedly highlighted[18,23,28,29,36,37,39–41]. Hand-injury care practitioners' role in addressing the determinants of health and creating opportunities to optimize their health and actively participate in service development remains largely unexplored. One might argue that this is not the role of hand-injury care practitioners alone to which is posed the rhetorical rebuttal: *Whose* job is it then, if not at least in part ours?

Chotchoungchatchai and colleagues highlight four factors that have substantially restrained the implementation of the three functions of primary healthcare: inadequate funding (captured in Guideline 7 of this study), primary healthcare workforce shortage (reflected in Guideline 8 of this study), insufficient intersectoral actions and inadequate empowerment (reflected in the recommendations contained in Guideline 10). These guidelines have therefore, indicated that recalibrating our focus and actions largely reflect an alignment with the functions of primary health care articulated in the Astana Declaration.

Adopting a process to develop sustainably

So how are we to tackle the recommendations contained in Guidelines 7-11 as a means to develop sustainably, given rapidly changing global and local contexts and substantial variation in current development being evident across sectors, provinces and districts? Where are we to start, and what process can we follow?

As part of the Rehabilitation 2030 initiative, the World Health Organisation has developed a practical guide for strengthening rehabilitation in health systems[242]. They have developed a four-phase process to guide governments at national and sub-national levels to strengthen rehabilitation in health systems. The key phases are assess the situation, develop a rehabilitation strategic plan, establish monitoring, evaluation, and review processes, and implement the strategic plan. These phases and accompanying activities are illustrated below (see Figure 10.12)[57].

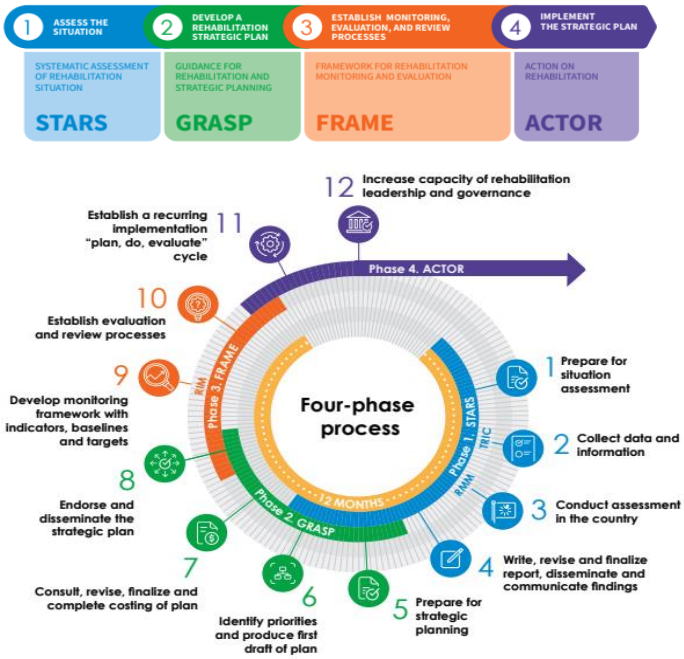


Figure 10.12: The four-phase process for strengthening rehabilitation in health systems as illustrated in *Rehabilitation in Health Systems: a Guide to Action*[57(pp.3-6)] (CC BY-NC-SA 3.0 IGO DEED)

While the guide was developed for government, the implementation cycle could easily be adapted for the implementation of recommendations generated by this study by key stakeholders. When consulting the guide and other key Rehabilitation 2030 initiative documents [86,242,273]a focus on the first function of primary health care[381] predominates and thus overt attention needs to be given to addressing determinants of health and the empowerment and integral engagement of communities in planning and implementing interventions.

10.5 Conclusion

This PhD research set out to identify contextually responsive support and development strategies for generalist occupational therapists delivering hand-injury care in the South African public health sector. The chapter commences with an overview of the evidence generated by this study, captured in seven manuscripts. The *experience* of generalist occupational therapists' is then analysed through the PEO Model[63] to identify key features of the Person (generalist occupational therapists), the Occupation (delivering hand-injury care),

and the Environment (complex healthcare context). This outlines key features of generalist occupational therapists' occupational performance that needs to be responded to in the generating of guidelines for their support and development. The process followed to systematically synthesise the evidence produced by each sub-study in the PhD thesis is described. Finally, eleven guidelines for generalist occupational therapists' capacity strengthening are presented and discussed.

CHAPTER ELEVEN: Conclusion

11.1 PhD Research Summary

This PhD study aimed to develop contextually responsive guidelines for the support and development of generalist occupational therapists delivering hand-injury care in the South African public health sector. A multi-method research approach was followed, and different study designs were employed for each of the three sub-studies of the PhD.

Contextual responsiveness mandates a consideration of policy. Study 1 therefore, sought to develop policy-based principles for hand-injury care delivered by occupational therapists in South Africa. A descriptive qualitative design was employed, and framework analysis as a form of content analysis was used to generate eighteen principles for hand-injury care that address the goal, nature and enablers of rehabilitation.

Responding to the needs and realities of service providers is another key facet of contextual responsiveness in healthcare. Study 2 therefore, used an instrumental case-study design to describe the experiences of generalist occupational therapists who routinely deliver hand-injury care. This experience was investigated to identify these therapists' support and development needs and to propose strategies to address these needs. Two separate sub-studies employed different data collection techniques to capture the experiences of Community Service occupational therapists (Study 2A) and fully registered independent practitioners (Study 2B). Reflexive thematic analysis was undertaken to generate themes that communicated therapists' experience of delivering hand-injury care in a generalist capacity. Strategies were proposed in collaboration with participants that include health system and service interventions, physical resources, and emotional support and learning opportunities for generalist therapists.

Study 3 employed a hybrid consensus development method to combine the results of studies one and two with diverse sources of evidence presented at a consensus development conference and considered by a panel of fourteen stakeholders. Guided by a skilled facilitator, stakeholders used a nominal group technique to consider the evidence and prioritise areas

for action for the capacity strengthening of generalist occupational therapists delivering hand-injury care.

A pragmatist approach to evidence synthesis was used to systematically combine the evidence produced in the PhD study into eleven guidelines. In order for the capacity of generalist occupational therapists to be strengthened for the delivery of hand-injury care in the public sector, services must be strategically and operationally aligned to professional values (1). This capacity of therapists must be strengthened through support and supervision (2), resource provision (3), the building of core competencies (4), the creation of a learning stratosphere that supports the development of these competencies (5), and nurtures resilience (6). Furthermore, in order to indirectly though substantially enable therapist capacity, it is necessary to strategise and operationalize services (7), to strengthen health systems (8), build stronger communities (9), strengthen human resourcing (10), and strengthen the medical and surgical management of hand injuries in the public health sector (11). A summary of the implications of these guidelines for practice, learning and development, leadership and management, policy, and research are outlined below, followed by the strengths and limitations of this PhD study.

11.2 Summary of disciplinary implications

The implications of each study have been addressed in the separate manuscripts, and a number of key implications have been highlighted in the discussion of the guidelines. The purpose of this section is, therefore, to summarise key implications of the project, as a whole, for *practice, learning and development, leadership and management, policy,* and *research.* This section presents an invitation to a broad range of stakeholders to partner and network[242] to achieve sustainable and synergistic outcomes. These role players include, but are not limited to, the Ministry of Health, The South African Society of Hand Therapists (SASHT) and the International Federation of Societies for Hand Therapy (IFSHT); The South African Society for Surgery of the Hand (SASSH) and the International Societies for Surgery of the Hand (IFSSH); the Occupational Therapy Association of South Africa (OTASA) and the Occupational Therapy Forum (National forum for public service occupational therapists); Universities; industry partners; generalist and specialist occupational therapists themselves, physiotherapists, service-users and their caregivers and communities, and hand therapy interest groups.

11.2.1 Practice

When universal health coverage is the target guiding hand therapy service development, the role of generalist occupational therapists becomes indispensable in responding to the demand for hand injury care. Hand therapy expertise (as illustrated in Figure 11.1), or a 'generalist-specialist' continuum, needs to be viewed with appreciation for novice practitioners as well as 'experienced non-expert' practitioners. Models of care must respond to these levels of expertise but also be designed to 'feed-back' the expertise of the 'specialist' into the care continuum. Allowing expertise to leave the system (e.g. by experts moving into private practice) will continue to have retarding effects on service delivery[47,48]. While the expert has a role to play in direct patient care, their role in re-investing expertise into the system is essential to the sustainable development of hand therapy practice. Finding novel ways of rewarding this re-investment and leveraging expertise is the invitation to the hand therapy community and the challenge for the implementation phase of this project.

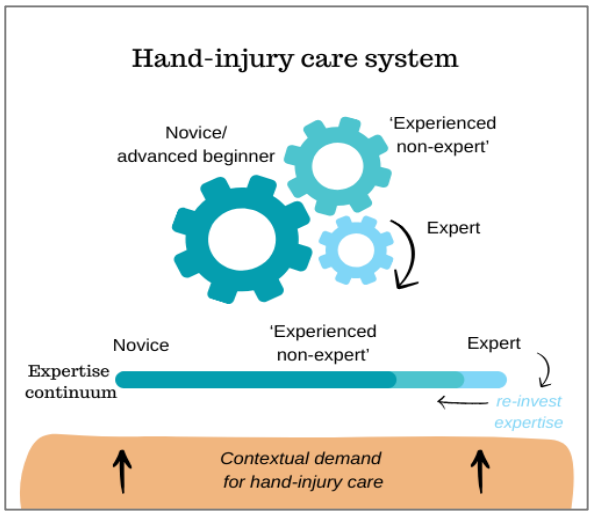


Figure 11.1: Expertise in the hand-injury care system

The results of this project offer both a call to focus our intervention and an invitation to broaden it: a perpetual re-focusing on participation and inclusion, along with the challenge to look beyond our clinics to the contributions that we can make to strengthen the hand-health of communities. The latter invitation is not prescriptive, and the opportunities plentiful: developing hand-injury prevention initiatives for an industry responsible for many of the hand injuries in a given clinic; offering skills development and work hardening services that improve

patients' ability to be remunerated for decent work, being part of policy development for the decentralisation of hand-injury care services in one's district; supporting service users in developing an online support platform for hand-injured patients and their families. These simple strategies suggest that it is possible to move away from isolated practice and to freely re-imagine our contributions to building healthy and vibrant communities and improving the hand health of all citizens. This calls for partnerships and networks, with and for communities, that connect multiple professionals within the healthcare team, establish local and international partners, that link the private and public health sectors, the education and practice sectors, the worlds of policy with practice, and draw together multiple government sectors. Accepting these invitations will call for critical reflection and a collective transformative process. These actions will constitute a re-investment in PHC and allow us to take an active stance in strengthening health services and health systems while sustainably investing in the occupational health and well-being of communities.

11.2.2 Learning and development

This PhD thesis offers numerous practical and implementable recommendations for hand therapy education in South Africa. Beyond this, adopting a transformative approach to learning[372] invites us to not only consider our local needs but to collaboratively develop global, open-access educational opportunities that can be tailored to suit local learning needs. Leveraging VCoPs also emerged as a clear means for facilitating contextually responsive learning and development.

11.2.3 Leadership and Management

While the implications of this project for practice and learning, and development are practical and numerous, the fulcrum for action for many of these recommendations, as well as those related to policy and research, is strong leadership and management. Leadership is essential to advancing the occupational therapy profession, providing access to our services, and furthering the achievement of health, well-being, and justice through occupational therapy. Cognisant of this need, the World Federation of Occupational Therapists has developed a Leadership and Advocacy Programme that offers resources to strengthen local leadership and advocacy efforts[382]. While promoting advocacy is included in the strategic focus of the

Occupational Therapy Association of South Africa[383], leadership development in the profession is not overtly mentioned. Previous initiatives have acknowledged the need for developing leadership[384], and this need continues to be highlighted[385]. Similarly, the support and development of occupational therapy managers that often operate in challenging and complex service contexts[163,386], needs to be prioritised.

11.2.4 Policy

This study echoes a challenge issued in a guest editorial in the South African Journal of Occupational Therapy that challenged occupational therapists to *"take cognisance of the international and national policies of the different ministries at all levels of government so that we can mobilise and maximise the available resources in realising the right to rehabilitation"*[159(p.1)]. Study 1 demonstrated that rich guidance is provided by policy for rehabilitation, occupational therapy and hand therapy services. However, the gap between policy and practice needs to be closed. The development of an online continuous professional development course based on the findings of Study 1 is proposed as a small step towards closing the gap. The role of managers in policy implementation is critical but is often opposed by numerous barriers[386], and recruiting mechanisms of support for these therapists is essential.

While excellent policies exist and await implementation, the need to represent rehabilitation, hand therapy and occupational therapy in policy development is also essential. Conradie and colleagues, in documenting the decade-long process of getting rehabilitation referral recommendations considered for inclusion in the South African primary health standard treatment guidelines, demonstrate that such actions require collaborative and persistent actions[164].

11.2.5 Research

This research project has highlighted the need to generate quality evidence for occupational therapy's contribution to environmental-level actions that create opportunities for communities to take their place in pursuing their health and well-being. It has also highlighted the need for occupational therapy practitioners and scholars to think together, critically

reflect together, act together and facilitate learning and research together. The use of participatory action research offers one means of strengthening collaborations between clinicians, researchers, educators and policymakers and ensuring that research enquiry is positioned, from the start, for implementation.

11.3 Strengths and limitations

Key strengths and limitations related to the three studies undertaken in this project have been outlined in the individual manuscripts. Those related to the project as a whole are presented in this section.

Community engagement in research can strengthen the relevance, translatability and sustainability of research[387], and was pursued from the early stages of protocol development. During the concept development phase, meetings with key stakeholders were arranged to obtain feedback that would be incorporated into the research proposal. The consensus methodology chosen for study three also facilitated further involvement of key stakeholders in the consensus panel and diverse presenters of evidence at the conference. This not only reinforced relevance by diversifying perspectives but also strengthened networks that will be used during the implementation and translation phase of this project. The inclusion of service-users in the consensus panel acknowledged the vital and sometimes very different perspective that service-users bring and affirmed the critical role that they must be allowed to assume as we pursue a sustainable development approach[381]. While the role of service-users in health research and service/system planning is commonplace in other countries, this is not typical in South Africa, where a paternalistic health system has restricted the role of service-users [388,389].

While community engagement and inclusion of service users in the study are highlighted as a strength, it is also acknowledged that the voices of those who have received care for hand injuries could have been more extensively captured in the data. The initial iteration of the research concept in 2019 included a phase that captured the experiences of service users. Experienced researchers advised that this phase be removed from the project for feasibility reasons. An MSc student was therefore recruited to conduct a study of the experiences of patients receiving hand-injury care using a patient-journey mapping method. The student was

able to present her preliminary findings at the consensus development conference, along with a number of other presentations that captured the perspectives of service users. While this did ensure a service user voice, this would have been further strengthened if primary data had been collected from service users in this project. Amplifying the voices of service users in research and their role as co-researchers should be pursued in future.

A key limitation of this study is the omission of occupational therapy technicians (OTTs), occupational therapy assistants (OTAs) and community rehabilitation workers (CRWs) in the research concept refinement process, data collection and the consensus panel. This was likely linked to the PhD researcher's lack of experience working with these colleagues in clinical practice and, thus, not appreciating their role in answering the research question. Involvement of OTTs, OTAs and CRWs as participants and co-researchers in future projects needs to be considered as their role in an inclusive and responsive occupational therapy workforce needs to be strengthened[319].

The creativity with which the research methods were designed is also considered a strength of this work and created the opportunity for additional publications and the opportunity to support research participants in exercising their agency in developing, piloting and presenting a practice innovation at both a local and international conference. While resources did not allow the PhD student to pursue action research that would have shifted her participants to positions as co-researchers, the creative choice of research design and data collection tools within a qualitative approach enabled participants to co-design and co-produce products presented in this work.

The guidelines developed by this project were informed by triangulated results from numerous data sources, using multiple data collection techniques, and aggregated from seven manuscripts, thereby strengthening their credibility and confirmability of the recommendations of this study. Rich descriptions of context further allow readers to consider the transferability of the guidelines to their practice settings and the development of hand-injury care in their countries.

Finally, while 'specialist' hand therapy practice characterises most hand therapy literature, this PhD research project is the first, to the PhD researcher's knowledge, that has explored

how the capacity of therapists delivering hand-injury care in a generalist capacity in a LMIC can be strengthened in order to improve hand-injury care towards the vision of universal hand-health coverage. While contextual features will vary, the recommendations from this study and the implementation that emerges from this project stands has the potential to benefit generalist therapists globally.

Theoretical strengths and limitations

The PEO Model[396] was chosen as a conceptual foundation for the study. The transaction between the person, environment and occupation is a key theoretical tenet in occupational therapy, though traditionally used to analyse the occupational performance of clients, rather than the occupational performance of therapists. It is the overlap of the three spheres (person, environment and occupation) that denotes occupational performance or the "dynamic experience of a person engaged in an occupation within an environment over time"[396(p.124)]. In this study, therapists' occupational performance, or their ever-changing experience of engaging in hand-injury care, constituted the overlap or output (at any given time) of the generalist therapist (person), working in their complex context (environment), performing hand-injury care (occupation). Use of the model created space for the largely *inductive* theoretical thrust of the project. The PEO also articulated well with the case study methodology that appreciates a phenomenon that cannot be separated from context, and thus the fundamental 'embeddedness' of person's engaging in a context. Furthermore, the *instrumental* use of case study in this PhD study enabled analysis of participants' experience to generate insights into the P- E and O (person, environment and occupation), and enabled the generation of responsive support and development strategies.

The application of the PEO facilitated the theoretical organization of the broad range of literature topics reviewed and facilitated inductive freedom for the PhD researcher and participants during analysis. This latitude was well suited to the explorative nature and descriptive design of the PhD topic. Arguably this allowed rich expression of the researcher's subjectivity, as well as that of the participants. When this subjectivity is viewed as problematic, it is worth considering the merit of using alternative theoretical models or frameworks for analysis and interpretation.

The Canadian Occupational Therapy Inter-relational Practice Process (COTIPP) is an example of a contemporary framework that could have been used to frame a more structured conceptualization of generalist therapists' delivery of hand-injury care. The Framework articulates occupational participation (in contrast to the PEO that describes occupational performance) as the overlap of the *meaning and purpose* of occupations (influenced by histories and relationships) with *occupational possibilities*, or the ability to access, initiate and sustain occupations (influenced by micro, meso and macro contexts) [397,398]. Use of this framework or other alternatives may have facilitated a more directed, deductive analysis of data. Results generated through this theoretical lens would likely be easier to communicate to audiences familiar with the framework, facilitating discussion with similar work. Instead of inductively generating guidelines from the work, use of a model would facilitate the articulation of recommendations within a validated model and potentially facilitate easier translation of results to other settings.

While potentially limiting the influence of the researcher and participants' subjectivity on the generation of results, it must be acknowledged that a more directive application of a recognised framework does not resolve the 'problem' of subjectivity but rather exchanges it by introducing another set of subjectivities – albeit a recognised theoretical perspective found to be credible through extensive peer-review. This reiterates the importance of making one's epistemological stance overt that the reader is able to appraise the credibility of one's work.

The PEO was well suited to the explorative nature of this PhD study, and its predominant inductive approach. Furthermore, the PEO leant itself to creating 'theoretical space' into which the diverse perspectives included in this work could be voiced, could 'mingle' and then be systematically interpreted. Rigour demonstrated in this process affirms the credibility of the guidelines produced. However, it must be acknowledged that engaging with validated contemporary frameworks would be prudent during the dissemination and implementation phase of this PhD.

While a framework did not deductively guide the evidence synthesis process used to generate the eleven guidelines developed by this study, this does not preclude the use of appropriate frameworks to either triangulate findings for publications, or to guide implementation. Rather, use of recognised frameworks will facilitate this PhD work contributing to

generalizable implementation knowledge[399]. The Consolidated Framework for Implementation Research is one example of a credible framework that can be considered to guide the implementation phase of the PhD project[400].

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Appendices

Appendix A: Article published in IFSSH Ezine describing the Consensus Development Process

HAND-INJURY CARE FOR ALL:

Strategic steps towards universal Hand Therapy coverage

Are hand therapy services available to all?

In South Africa, as in many parts of the world, access to specialist hand therapy services is not an option for the majority of the population. Hand-injured patients, dependent on their hands for their livelihood, rely on services delivered by generalist therapists who typically work in complex rural, remote or underserved practice settings, with few resources, little or no supervision, and minimal support.

How do we strengthen the capacity of generalist therapists?

The role of specialist hand therapists will remain a critical one. However, if we are to pursue a vision of quality hand therapy for all, it becomes essential to consider how the capacity of generalist therapists may be strengthened to extend access to basic hand-injury care services. We sought to tackle this question collaboratively in South Africa through a hybrid consensus development conference (CDC) supported by the University of the Witwatersrand and the South African Society of Hand Therapists (SASHT).

The Conference: considering the evidence

A call for abstracts for the conference was circulated in late 2022. Twenty-nine presentations were included in the hybrid conference held in Pretoria, South Africa on Friday, 24 February 2023. Evidence presented by local and international colleagues covered the practice realities and experiences of generalist therapists, the perspectives of service-users, relevant assessment and treatment practices, strategies for capacity strengthening, policy perspectives and practice innovation. A practice

The hybrid Conference was held at the CSIR Convention Centre in Pretoria, South Africa.

innovation that was well received was a mobile hand therapy station (Hand Therapy on the move) that has been piloted in two rural settings in South Africa. The backpack kit contains all basic splinting equipment and supplies, and occupation-based rehabilitation resources. The plan is for the kit to be placed on state tender to enable therapists to easily procure the resource. The design and construction of the kit will be shared via publication to enable the practice innovation to be replicated in other LMICs.

The mobile hand therapy station that can be pulled on wheels or carried on your back

A panel of fourteen stakeholders was invited to the conference to consider the evidence and establish consensus on what is needed to strengthen hand therapy services and the capacity of generalist therapists for this. The stakeholders represented: generalist occupational therapists working in rural and urban settings (Adri Cronje, Keri Collinson, Lauren Lubbe and Bibi Fatima Loonat), physiotherapy (Joanne Wylie), SASHT (Elani Muller), the South African Society for Surgery of the Hand (Dr Antoine Rocher), service users (Tshepiso Kolomote and Hena Dajee), the National Occupational Therapy Forum (Rogini Pillay), the Occupational Therapy Association of South Africa (Anisha Ramlual), Occupational Therapy Education (DrThuli Mthembu), Research (Dr Hester van Biljon) and the Department of Health (Thabani Ncwane).

Conference attendees were able to share their perspectives on the evidence presented on post-it notes (in-person attendees) and via the Zoom chat (online attendees). The stakeholders considered these impressions before embarking on the consensus development process. Key themes that emerged from these contributions was accessible information and learning resources; the need for mentorship, Communities of Practice and networks; and the role of undergraduate education.

Stakeholders review attendee perspectives prior to following the consensus development process.

Developing consensus: using a nominal group technique

The consensus development process took place on Saturday 25 February 2023 using a nominal group technique. The key question posed to the group was: What is needed to make quality hand therapy happen in public services?

The first step of the process involved generating ideas in response to this question and the evidence presented at the conference. Each stakeholder silently and independently recorded his or her ideas on cards. In the second step, ideas were shared and recorded in a round-robin format until all ideas (167 in total) had been exhausted.

Step 3, discussing ideas involved clarifying each idea and collectively sorting these into categories. The ideas were clustered into ten categories.

Voting on ideas, the final step of the NGT, was completed using interactive presentation software (www.mentimeter.com).

Step 1: Stakeholders generate ideas independently

Step 2 & 3: All ideas were shared and recorded, after which ideas were discussed and collectively categorized

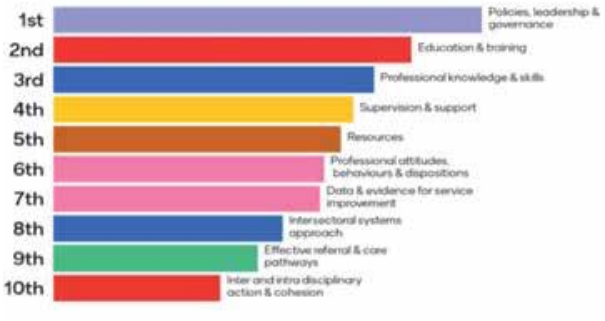

Figure 1: Consensus on priority areas for action to enable quality hand therapy in the South African public service voted by stakeholders (n=14)

Each stakeholder ranked the ten categories that they considered most important for the delivery of quality hand therapy. Figure 1 illustrates the result: the top five priorities were policies, leadership and governance, education and training, professional knowledge & skills, supervision and support, and resources. The specific areas for intervention within each of the ten categories is undergoing further analysis and will be shared via journal publication.

One small step towards universal hand therapy coverage: where to from here?

The CDC has been instrumental in highlighting the needs of generalist occupational therapists for delivering hand therapy as well as identifying prioritized areas for action. But the hard work lies ahead: opportunities to leverage international partnerships should be explored to extend the impact of this project beyond the South African context. Quality hand therapy for all is an ambitious vision but one that invites us to pool our expertise and resources to extend hand therapy to the populations that need it the most. The production of high-quality open access educational content for generalist therapists may be one strategic way that we can work towards this vision.

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Appendix B: Details of the research concept refinement process

The research concept, with the objectives and proposed methodology included in the table below (see Table 12.1) was presented to various stakeholders & informants. These included the National Department of Health, professional organisations (*Rural Rehabilitation South Africa, South African Society of Hand Therapists, Occupational Therapy Association of South Africa*) generalist occupational therapists who are delivering/delivered hand rehabilitation within the South African public sector, hand rehabilitation educators, clinical experts and hand rehabilitation researchers. This was firstly done to expose to scrutiny the student's understanding of the researchable problem to ensure that it had been accurately perceived. Secondly, this exercise facilitated feedback on the relevance, contextual responsiveness and feasibility of the project. Thirdly, the exercise facilitated early collaboration with key stakeholders, which will be pursued throughout the project to facilitate the implementation of the findings of the study and strengthen its impact. Feedback received during the refinement process is has been tabulated below (see Table 12.2). Considering the feedback, essentially objective 1 and 2 have been removed. An objective around policy has been added as an objective and objective 3, the main focus of the study, has been developed further.

Table12.1: Initial research objectives presented during presentation of research concept to stakeholders

Phase 1: Needs identification				
		Objective	**Methodology**	**Methods**
	1	Map **current services**	Quantitative, descriptive, cross-sectional	Document review Researcher-administered questionnaire
Concurrent	2	Explore service **users' experiences**	Qualitative/Quantitative	Patient journey mapping (with local translator) Observations
	3	Describe service **providers' needs**	Exploratory sequential mixed method	Collective case studies, observations➔ Descriptive cross-sectional survey
Phase 2: Solution generation				
4. Establish **how** support and development **needs of service**			Consensus methodology	? Delphi / Nominal group / Consensus development conference

providers can be addressed		

Table 12.2: Key informant / Stakeholder input on research concept

Stakeholder/ key informant	Feedback / response
CARTA Directorate, facilitators & fellows Consortium for Advanced Research Training in Africa *Date of meeting: 27 March 2019*	• Clear outcome. Always ask 'what are predictors & outcome' • Methodology: more depth needed; mapping – how?; sample size? • Objective 3: service providers – who are they? • Good basis: define question more clearly – challenge is to have very specific questions & appropriate methods. • Define hand injuries • WC & EC – too ambitious; urban/rural in one province • Consider excluding service users' perspective -? MSc student? • Prevalence – don't highlight this as gap if not going to address it • Good articulation of problem • Users' experience of both specialised and non-specialised services should be considered. • "Health services in South Africa are a bit different in most African countries or other low income countries. Add a bit of background on how the hand service care is structured in SA for audience not familiar with SA health services to understand context. Like, if I had a hand injury, what would be the pathway to care in SA? • Not sure from your title and presentation whether you're targeting therapists, patients or both. • The main objective seems to leave out the experiences of those who have had injuries which I presume are the 'users'. • Include patients in title • Methodology looks too heavy & proposed study may not be feasible in 3 years – may need to focus on one area. Scope of study too wide • Your study is quite large. Can you do it within the scope of the PhD? • Prof Sharon Fonn: balance your presentation – maybe too much background; how will you map? What data source will you use? You need to define the level/type of hand injury you are including – it will not be all hand injuries I assume – only those that will result in serious outcomes that can be prevented with proper intervention. May need to define only one district / sub-district in each Province. ? Maybe at a district hospital and clinics that refer to it?; prevalence has specific meaning and methods applied to it. "Hand therapist": define who/what they are. Nice basis in what you know, don't know – now need to really develop question (almost there) and methods, which need more clarity and work; Why focus groups? What kinds of questions do focus groups best answer? What overall aim? Change curriculum; what about linking to other service providers? Who is your study population? ; What about identifying CS professionals - see what they see as patients and then look specifically at hand injuries. They can keep a diary. Describe if they feel able to manage the people they see, what else they want to know, what support (referral) they need etc.
SASHT Executive Committee (South African Society of Hand Therapists) *Date of meeting: 6 April 2019*	• ++ Well received; • Committee reflected on how the study concept can inform the direction /planning of SASHT Exco • D Devan – need to do conference to make project worthwhile; willing to assist with conference • Confirmation that not all practicing therapists are members of SASHT
Corrianne van Velze (Co-founder SASHT,	• 2nd objective "not necessary" to know; "not needed"; will just uncover "social problems" – Ms van Velze anticipates numerous problems

clinical hand rehabilitation expert, University of Pretoria educator & author) *Date of meeting: 22 May 2019*	• Caution regarding use of term "hand therapy" • Suggested: focus on Western Cape only • "Much too big"; "narrow it down, make it as small as possible" • Objective 4: international speaker not necessary – "you will be the expert"; Provincial rehabilitation co-ordinators: "irrelevant" – "just need to rubber stamp it"; Service users: "chuck those out…they don't know what they need" • Objective 3: Also spend day with therapists; observation essential as therapists "don't know what they don't know" • Mapping of services: access to surgeon, to CPD, to mentors, to supervision, translation of knowledge in setting, anatomy and clinical reasoning • Highlighted importance of therapists being able to be adaptable, resourceful, "make do" with readily available things/ 'basics' to use in therapy; "tassie" with the basics • Objective 4: "you must steer it"
OTASA Elvin Williams (Previous AD: Occupational Therapy Western Cape Provincial Health; current COO of the Occupational Therapy Association of South Africa) *Date of meeting: 14 June 2019*	• Clear, well thought-through; "love it" • Questions around policy – will need buy-in from policy makers • Findings will have application for other practice areas • Need face-to face meeting with EC Rehabilitation manager; other key contact in EC Elelwani • Rogini Pillay – National OT forum Chairperson • Document that exists: situational analysis of Rehabilitation in the Western Cape • Western Cape OT post structure – email Elvin / Megan
A/Prof Helen Buchanan (HB) (University of Cape Town - Hand rehabilitation educator & researcher) *Date of meeting: 14 June 2019* Susan de Klerk (SdK) (University of Stellenbosch - Hand rehabilitation educator & researcher,PhD candidate) *Date of meeting: 14 June 2019*	• Too big! But once methodology defined – will be easier to determine how big the study is • HB – unclear why objective 1 and 2 are relevant • SdK – likes objective 2 but consider merging patient perspective with main focus (objective 3) and using patient perspective as part of triangulation • Or leave objective 2 for MSc students – part / not part of PhD • Query around detail of methodology
RuReSa Adri Cronje (Rural hand rehabilitation expert – identified as key informant by Chairperson of Rural Rehabilitation South Africa - Maryke Bezuidenhout. *Date of meeting: 11 June 2019*	• Manguzi Hospital for +12 years • An OT should be able to treat a hand (not only a hand therapy specialist) • No surgery at district level. Used to refer for surgery to Dr Hollander at regional Hospital (Ngwelezane). Doctor transferred to Nkosi Albert Lithuli – attempt made to bypass regional level and refer to NAL. Now monthly hand clinic with Dr Antoine Rocher. OT runs clinic and Dr flies in to do surgery. Feedback on research concept: • EC- help is needed • Massive Task • "What you are going to gain from it is exactly what we need"… "From the ground up" • Undergraduate training often irrelevant for rural practice • Objective 1 & 2: valuable to know to inform 3 and 4 • Objective 3: Methodology appropriate • "You're spot on"; "Very interesting results" • Anticipates that study will uncover challenges that young therapists face in terms of development (management etc)

	• Technology: eg. 3D printers – where are OTs going to feature? Are we thinking about how we teach this? What changes can be made at an undergraduate level; graduates with more confidence.
Maluta Tshivase Deputy Director: Disability & Rehabilitation, National Department of Health *Date of meeting: 12 July 2019*	• National Dept. will benefit from research to help address gaps in capacitation • Highlighted concepts: *Access* (numbers on the ground and equitable distribution – including district distribution) and *quality of care* • Highlighted essential role of undergraduate curricula – *then* interventions after this to enhance and further develop skills – for the latter aspect the study will be helpful • Side points: splinting needs to be maintained as OT competency; OTs need skills training at university (not just theory); Interventions must improve function • Essentially need representation of rural and urban perspective
*Ex- **Community Service Occupational therapists**:* - *Alexia Barbis (urban)* - *Tendai Gidini (urban)* - *Gabrielle Smith (rural)* *Date of meeting: 19 July 2019*	• Concern: will guidelines be implemented (AB) • Need for more undergrad hand time (AB) and need for 'real patients' in teaching of undergrad hands • Project worthwhile: Coming out of undergrad – new very little of hands – within rural setting – knew nothing. Rural reality: no material, no resources, no supervisors, no surgery!! CPD in East London: presenters needed to adapt course for participants within and without resources eg. access to hand surgery (GS) • Suggested Data collection – video and photos (GS); consider Nelson Mandela Hospital • Thembisa: surprisingly well resourced; young team (1/2 years post CS or CS); 'got-to' – big book of protocols – but difficult as protocols are specific but in reality injuries are complex (damage to multiple tissue types) (TG) • Carry over from University limited – actual situation so different. If no practical experience in undergraduate – then hands very challenging (TG) • Ended up teaching each other (TG). UP OT – universities make tendon injuries sound complex – make no reference to protocols used in government; you can have all the resources you need – but knowing how to use it. (TG) • Feedback on concept: might become too much – volcano of information with proposed collaborative plan. ? Focus on specific areas within province. Data collection: don't speak for them.

Appendix C: HREC Clearance Certificate

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG	HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)

Office of the Deputy Vice-Chancellor (Research and Postgraduate Affairs)

TO: Ms K van Stormbroek
School of Therapeutic Sciences
Department of Occupational Therapy
Medical School
University

E-mail: Kirsty.vanStormbroek@wits.ac.za

CC: Supervisor: Dr T Rauch van der Merwe
<Tania.vanderMerwe@wits.ac.za>
and <HREC-Medical Research Office@wits.ac.za>

FROM: Mr Iain Burns
Human Research Ethics Committee (Medical)
Tel: 011 717 1252

E-mail: Iain.Burns@wits.ac.za

DATE: 2021/04/08

REF: R14/49

PROTOCOL NO: **M200235** (This is your ethics application reference number. Please quote it in all enquiries, oral or written, relating to this study.)

PROJECT TITLE: *Contextually responsive support and development strategies for generalist occupational therapists delivering hand-injury care in South Africa*

Please find attached the Clearance Certificate for the above project. I hope it goes well and that an article in a recognized publication comes out of it. This will reflect well on your professional standing and contribute to Government funding of the University.

MSWorks2000/Iain0007/Clearscan.wps

Appendix D: Definitions for Contributor Roles Taxonomy (CRediT)

Contributor Roles Taxonomy[156]	
Contributor roles	Definition
Conceptualisation	Ideas; formulation or evolutaion of overarching research goals and aims
Data Curation	Management activities to annotate (produce metadata), scrub data and maintain research data (including software code, where it is necessary for interpreting the data itself) for initial use and later re-use.
Formal analysis	Application of statistical, mathematical, computational, or other formal techniques to analyse or synthesize study data.
Funding acquisition	Acquisition of the financial support for the project leading to this publication.
Investigation	Conducting a research and investigation process, specifically performing the experiments, or data/evidence collection.
Methodology	Development or design of methodology; creation of models.
Project administration	Management and coordination responsibility for the research activity planning and execution.
Resources	Provision of study materials, reagents, materials, patients, laboratory samples, animals, instrumentation, computing resources, or other analysis tools.
Software	Programming, software development; designing computer programs; implementation of the computer code and supporting algorithms; testing of existing code components.
Supervision	Oversight and leadership responsibility for the research activity planning and execution, including mentorship external to the core team.
Validation	Verification, whether as a part of the activity or separate, of the overall replication/reproducibility of results/experiments and other research outputs.
Visualization	Preparation, creation and/or presentation of the published work, specifically visualization/data presentation.
Writing-original draft	Preparation, creation and/or presentation of the published work, specifically writing the initial draft (including substantive translation).
Writing – review and editing	Preparation, creation and/or presentation of the published work by those from the original research group, specifically critical review, commentary or revision – including pre- or post-publication stages.

Appendix E: Policies included in Study 1: Feedback received from policy experts

Expert	Nature of expertise	Feedback	Student's proposed response	Action based on discussion with supervisors 28 July 2020
A/Prof Helen Buchanan (Head of Division: Occupational Therapy) University of Cape Town	Hand rehabilition Policy	**Suggested inclusion of:** • Convention on the rights of Person's with Disabilities • Policy Framework & Strategy for Ward-based PHC outreach Teams • World Federation of Occupational Therapists (WFOT) Quality Evaluation Strategy Tool (QUEST): An essential guide to using quality indicators in occupational therapy *Suggestion to include Rogini Pillay as expert*	Inclusion of all 3 documents Email sent to R. Pillay.	"Park" these and see what emerge from initial analysis. You may have to include them I think from a macro perspective.
Prof Theresa Lorenzo (Programme convenor: Disability studies doctoral programme, University of Cape Town)	Policy	"Cant think of any other policies that would be relevant" Ask Helen Buchanan or Hanske Flieringa	NA H.Buchanan already included.	NA
Dr Jennifer McAdam (Rural Clinician & researcher – associated with Wits Occupational Therapy Department)	Policy Rural health	"…don't have any specific policy documents in mind that could be added" I would like to suggest, though, that it might be worth **broadening your inclusion criteria**, to include **Provincial documents.** I believe that a number of Provinces have **condition-specific clinical protocols, as well as clinical audit systems which include auditing around hands services.** In general, I don't think that national or international policy documents are condition-specific at all, so I would be surprised if there was much which speaks to any particular condition, including hand injuries. And I guess I	Although really interesting and relevant, these documents go beyond my objectives for this study • HPCSA & WFOT MSEOTs	As discussed in meeting: Policy analysis often includes consideration of macro, meso & micro. May need to include these procedure documents. Withhold expectations for now, start analysis of Macro policies – and take it from there. There will likely be gaps that require consideration of more procedural documents.

		would ask the question - are over-arching policies meant to be (medical) condition-specific? In terms of a hierarchy of governance structures, policies are usually more generic, whereas Procedure / Standard Operating Procedure Documents, or Clinical Pathway protocols, would be about a specific condition. So obviously I don't understand the context of your study, or the research question etc, but in my view, perhaps most important to look at the **standards for OT training (I see you have included both SA and WFOT in that regard**). In addition, there are some other HPCSA documents which could be of relevance - they are just not available in the public domain as yet. Firstly, the **revised OT Scope of practice and profession**, and then the **HPCSA Assistive Devices and Technology Pape**r	already included. • Revised OT scope of practice & professio n • HPCSA Assistive devices & technolog y Position Paper	? Include both revised OT scope & HPCSA Assistive Devices & technology position paper. Revised OT Scope not yet available (requested from HPSCSA OT Board Chair). Therefore assistive devices policy included only.
Susan de Klerk (PhD Candidate and Lecturer – Stellenbosch University)	Hand rehabilitation	"I cannot think of any additional policies. I have certainly used the National Development plan a great deal"	NA	NA
Dr Fasloen Adams (HOD Occupational Therapy, Wits University)	Policy	Initial response: "you cannot look at general policy documents for this as it is not the nature of general policy documents to be diagnosis specific"…. "Then your question should not be what are the policy principles for hand injuries. It should be what are the policy principles for rehabilitation". Telephone conversation: • concern around bias of question (had difficulty understanding feedback) • Proposed revision to question: Considering	Discuss with supervisors Request supervisors to watch for this. Question does capture this. Addressed in response to Dr McAdam's	Identify bias in thinking. Hand injuries and rehab policies and guidelines are necessarily separate Dive into reading and analysis of a few policies and analysis of one and see what happens.

		policy, what are the principles that would direct the development of hand rehabilitation services? • But also consider if you should be looking at more diagnosis-specific documents. Eg. OTASA, provincial level procedure documents around hands • Also, be sure to establish the credibility of the experts that provided input on list of policies.	comments above. Credentials will be reported.	
Mrs Rogini Pillay HOD Groote Schuur Hospital and Chairperson of National Occupational Therapy Forum	Policy and Service Delivery in Public Sector	Unable to provide input now due to COVID-19 related pressures.	NA for now	NA for now

Appendix F: Positionality statement

The first author's personal experience of delivering hand rehabilitation as a novice practitioner in 2006 shaped her interest in the research topic. Subsequent clinical work within a hand surgery unit and a decade of hand rehabilitation research has shaped the author's understanding of the social determinants and consequences of hand injuries. A strong sense of justice, situated within the author's personal worldview, has further influenced her research work towards equitable access to quality healthcare, and the needs of the practitioners that are integral to this. The South African health care context has a history of systemic oppression. Therefore, as a white, female, English-speaking researcher and educator, her justice-driven approach runs the risk of perpetuating paternalistic postures, necessitating reflexive thought and recalibration on the part of this author.

Underpinned by constructivist assumptions, the first author takes a pragmatic approach to research. This orientation has been influenced by exposure to diverse theoretical positions: early undergraduate exposure to critical perspectives in qualitative inquiry and experience of more positivist assumptions from work within clinical settings. The different research paradigms of this article's co-authors iterate this diversity of perspectives. Occupational therapy theory has also contributed a lens through which the research question as been approached: appreciation of the person, environment, occupation transaction as a core occupational therapy assumption [63,64] have guided data collection and analysis.

Appendix G: Policies from which each principle produced by Study 1 was derived

	Categories (codes included in category)	Policies from which indexed text was synthesised																												
		Convention on the rights pf	Client-centeredness in	Competency & maintaining	Diversity & Culture	Entry-level competency	MSEOTS	Occupational Science	Occupational therapy &	Occupational therapy &	Occupational therapy &	QUEST	Specialisation & advanced	Sustainability	Rehabilitation 2030 – A call	Rehabilitation 2030 – a	WHO global disability …	WHO rehabilitation	Framework & strategy	Ideal clinic manual	INDS	DOH Language	Rehabilitation for All	Standardization of assistive	White paper on the rights of	MSEOTs 2019	NDP 2030	NHI Bill	WRULDS	Policy & framework for
1.	Function, participation and inclusion in society (3.8)	X	X				X		X	X	X				X	X	X	X	X				X	X	X		X			
2.	Access: available, accessible, affordable, adequate and acceptable (2.1; 2.5; 7.1; 7.19)	X	X	X	X		X		X	X					X	X	X	X	X	X	X		X		X	X	X			X
3.	Equity and equality (2.2; 2.6; 3.2)	X			X		X		X	X	X				X	X	X	X	X		X	X	X	X	X		X			X
4.	Seamless services: integrated, co-ordinated and team-based (2.4; 3.13; 7.5; 7.6; 7.7; 7.8)	X					X								X	X	X	X	X	X			X				X			
5.	Intersectoral action for vital communities (3.12; 3.3; 3.17)	X					X	X	X		X			X	X	X	X	X	X	X	X		X			X	X			X
6.	Empowered clients and communities (3.14; 3.9; 7.20; 7.24)	X	X				X		X		X					X	X	X	X	X	X		X	X	X					X
7.	A vital workforce (2.9; 7.2; 7.3)	X		X			X								X	X	X	X	X				X			X	X			X
8.	Work interventions (7.14)	X					X								X								X		X				X	
9.	Quality, patient-centred care (2.3; 2.10; 3.1; 3.7; 7.15; 7.16; 7.17)	X	X	X	X	X	X		X		X	X			X	X		X	X		X		X	X	X	X	X			
10.	Data for service improvement (7.4; 7.12)	X													X	X	X	X	X	X	X		X			X	X			
11.	Truly comprehensive care: care that includes prevention, promotion, cure, rehabilitation and palliation (2.7; 3.10; 3.11)	X					X				X				X	X		X	X		X		X				X		X	X
12.	Occupational perspective (3.16)						X	X																		X				
13.	Responsive & anticipatory (3.4; 3.5; 3.6; 3.15)	X													X	X	X	X					X			X	X			
14.	Networks & partnerships (7.23)	X													X	X									X		X	X		
15.	Leadership & governance (7.21)	X													X	X		X	X				X		X		X			X
16.	Financing (2.8; 7.22)						X								X	X		X					X				X	X		
17.	Resources & infrastructure (including assistive devices) (7.10; 7.11)	X													X	X		X	X	X			X							
18.	Technology (7.13; 7.9)	X																X									X			

Appendix H: CDC Stakeholder Booklet with Abstracts

SUPPORT & DEVELOPMENT
OF GENERALIST OTs
DELIVERING HAND THERAPY

CONSENSUS DEVELOPMENT CONFERENCE

24 & 25 FEBRUARY 2023
PRETORIA

Thank you for agreeing to participate in this Consensus Development Conference. *Section 1* of this booklet provides a brief introduction to each of the stakeholders participating in the consensus development process. *Section 2* contains a summary (abstract) of each of the presentations. After each summary there is a place for you to make notes. These notes will assist us in our discussions on Saturday. As you listen to each presentation, we would suggest that you reflect on the following question: *What is needed to make quality hand therapy happen in public hospitals?* Please feel free to take down any additional notes that you think are relevant.

Please note the following arrangements/details:

- Friday 24 February 2023
  - CSIR Convention Centre 08:15 – 17:15
  - Transport is arranged to & from Murray 137 Guesthouse for those who need it
  - *Your task: listen to presentations and take notes*
- Saturday 25 February 2023
  - Murray137 Guesthouse 08:00 – 14:30
  - *Your task: Share your thoughts/ideas during a structured discussion led by Daleen Castelijn*

Section 1: Introduction of the Stakeholder panel

Elani Muller

Representing: The South African Society of Hand Therapists

I currently work as a Data Manager at a Research Unit in East London and I locum from time to time in a private hand therapy practice in East London. I am a mom of two beautiful daughters and the current SASHT President.

Dr Antoine Rocher

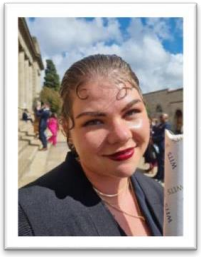
Representing: The South African Society for Surgery of the Hand

I am an Orthopaedic Surgeon based at Inkosi Albert Luthuli Hospital, Durban and a member of the Orthopaedic Surgery Department at the University of KwaZulu Natal. I have been involved in delivering outreach hand surgery services to a remote Hand Clinic in Northern KwaZulu Natal.

Fatima Bibi Loonat

Representing: Community Service Occupational Therapists

I recently completed my Community Service at Potchefstroom Hospital, where six months of the year was dedicated to orthopaedic hand therapy. I was fortunate to learn a lot from a great supervisor so that I was able to provide quality services to the community. I currently work at a private paediatric practice.



Keri Collinson

Representing: Community Service Occupational Therapists

I completed my Community Service at Victoria Hospital, in Alice – a rural part of the Eastern Cape, in 2022. I saw many patients with hand injuries and conditions. My experience of delivering care to these patients became increasingly challenging when the permanent occupational therapist resigned and I was the only occupational therapist delivering this service.

Tshepiso Kolomote

Representing: Service users – Public Sector

I was involved in a car accident in 2021 and sustained left base of fourth and fifth metacarpal fractures, as well as fractures of both my lower limbs. My MP joints were immobilized in extension for a long time, so it took a lot of therapy to regain my hand function.

Hena Dajee

Representing: Service users – Private Sector

I was involved in a car accident in March 2020 and sustained a C4,5,6 incomplete spinal cord injury. I was hospitalized in ICU at Union Hospital for 2 months and thereafter was referred to Auckland Park Hospital for 4 months of rehabilitation. I continue to wear my thermoplastic splints and receive out-patient occupational therapy.

Joanne Wylie

Representing: Physiotherapy in hand therapy

I currently run an NMS private practice Cape Town and I've worked within hand therapy private practice since 2003. I am involved in the clinical education of undergraduate physiotherapy. I have recently been involved in a multi-centre flexor tendon repair clinical trial at Groote Schuur, Tygerberg, Chris Hani Baragwanath and Inkosi Albert Luthuli Hospitals. I graduated with an MSc in Public Health in 2022; my thesis focused on the outcomes of Zone II flexor tendon repairs.

Thabani Ncwane

Representing: The Department of Health

I am an Assistant Director Occupational Therapist at Steve Biko Academic Hospital. I am also deputy chair of the National OT Forum; Gauteng OT Steering Committee and Chair of the Gauteng Upper Limb & Hands Task Team. I graduated with Masters in OT (UP) in Upper Limb injuries; B.Occ.Therapy (UKZN); Prac. Labour Law (UCT) and Medical Law Cert. (LEADS). I have worked in insurance, health risk management and medical surveillance, and I continue to work in public and private sector.

Anisha Ramlaul

Representing: The Occupational Therapy Association of South Africa

I am an occupational therapist currently serving as the Chief Operations Officer of OTASA. I have a keen interest in the provision of hand therapy services and worked within this area of practice as a public-sector occupational therapist.

Lauren Lubbe

Representing: Generalist occupational therapist – Urban

I graduated top of my class at the University of the Free State in 2011 and completed my Diploma in Hand Therapy at University of Pretoria in 2015. After working 4 years in a government hospital in Mpumalanga, I moved to East London to further my career in a private hands practice. In 2017 I made the move back into government, where I continue to work at Frere Tertiary Hospital in East London.

Adri Cronje

Representing: Generalist occupational therapist – Rural

I work at Manguzi Hospital as a Chief OT. I studied at UP and have Post grad qualifications in hands and paediatric neuro. I recently completed my advanced seating course. I am a clinical associate for UKZN and supervise 4th year OT students for their 6 week physical blocks. I have an interest in Hands and with the support of Dr Rocher from IALCH and UKZN, established an outreach specialized hands clinic at our district hospital. I supervise and mentor CSOT's in my department and in our district.

Hester van Biljon

Representing: Clinically-focused research

I am essentially a clinician. Having worked as one in public healthcare and later in my own practice in Gauteng for more than 30 years. I obtained my PhD from Wits (2016) and recently completed a 5-year postdoctoral tenure with Prof Lana van Niekerk at Stellenbosch University. I am the Managing Editor for the South African Journal of Occupational Therapy (SAJOT) and I am still a clinician at the Work-Link vocational rehabilitation practice. I also freelance helping PhD candidates, from SMU, UNAM, Wits and Stellenbosch University with specific aspects of their projects e.g. their scoping reviews, or data gathering.

Thuli Mthembu

Representing: Occupational Therapy Education

I am a lecturer of occupational therapy and interdisciplinary courses at the University of the Western Cape, having joined the Department in 2011. Prior to this I worked as a Chief Occupational Therapist at Shongwe Hospital in rural Mpumalanga. I received my Bachelor's degree in Occupational Therapy in 2005, my Masters degree in Public Health in 2010 and my PhD in 2017. The latter addressed the integration of spirituality and spiritual care into occupational therapy education.

Rogini Pillay

Representing: National Occupational Therapy Forum

I graduated with a BSc (OT) at UCT in 2000. I qualified as a certified lymphoedema therapist with the Norton School of Lymph Therapy in 2010 & graduated with a MScMedSc (Rehabilitation) at University of Stellenbosch in 2014 (Centre for Rehabilitation Studies-CRS). I am currently the Assistant Director at Groote Schuur Hospital OT department. Prior to this I worked at Tygerberg for over 8 years in burns, plastic surgery and lymphoedema, having previously worked in the UK. I established the lymphoedema service at Tygerberg & Groote Schuur Hospitals and was one of the founding members of the Lymphoedema Association of SA (LAOSA), having served in various office bearer positions, including president. I am currently the chair of the WC OTASA branch.

Section 2: Conference Abstracts

Working in the dark: The need for contextually responsive educational resources in hand therapy (S1.1)

Nicola Ehlers (Leratong Hospital, Gauteng, RSA)

Introduction: Current evidence in hand therapy is based on, and aimed at, best practice in high income countries. It does not take into consideration the unique challenges prevalent in low- and middle-income countries such as South Africa. Accessible educational resources that apply sound theoretical knowledge and support clinical reasoning in this context are essential in building the capacity of generalist therapists to deliver quality hand injury care.

Method: A review was undertaken of 155 new referrals of hand injury cases seen over a six-month period by a single therapist at a regional hospital in Gauteng. A descriptive analysis of these cases was integrated with relevant literature to highlight contextual challenges which preclude standard management as described in hand therapy literature.

Results: Bed shortages and a lack of theatre time lead to delays in surgical management. Referrals may be received well after the recommended time frame for initiation of hand therapy has passed. Therapy is carried out in departments with limited resources, where the materials and equipment described in the literature may not be available. Patients are unable to come for appointments at the recommended time intervals due to poor access to healthcare facilities. Standard protocols are unlikely to be of much benefit for these cases, leaving generalist therapists in the dark as to how to provide quality care. They struggle to integrate sources of information to address complications while still providing adequate protection to the hand injury.

Recommendations: This problem can only be addressed by equipping generalist therapists with the knowledge, skills and clinical reasoning needed to provide hand injury care in complex contexts. Online resources such as webinars are particularly effective in achieving this goal, and can be recorded to provide an easily accessible and sustainable solution to improve the quality of hand therapy services across our country.

Notes: *What is needed to make quality hand therapy happen in public hospitals?*

Effective referral: barriers & concerns (S1.2)

Desré Bates (Tygerberg Hospital, Western Cape, RSA)
Susan de Klerk (Stellenbosch University, RSA)

Introduction: Effective referral is a necessary part of providing appropriate and adequate service to the public. Up and down referral between tertiary institutions, district-level institutions and public health care centres remain a challenging endeavor. Referrals are often done without informed knowledge or consideration for resources and services available at the next level of care, thus compromising effective referral and continuity of care, and impacting health care outcomes.

Methods: A focus group was conducted consisting of occupational therapists representing various levels of care within the Tygerberg substructure in the Cape Town Metropole. The questions focused on identifying the key barriers that impact effective referral and by extension effective and efficient continued hand therapy service delivery.

Results: Lack of knowledge and comprehension of skill levels, human resources, physical resources, and service delivery programmes available at the different levels of care impact the ability of occupational therapists to write and respond to referrals effectively. Clear and ongoing communication of resources and skills available across health care levels is needed. Identifying barriers faced at each level will allow for a shared understanding and an ability to collectively address the barriers faced by the occupational therapy profession in providing adequate hand therapy services across board. Identifying barriers and taking steps to address such barriers in the form of skills development, mentoring, management assistance etc will allow for referrals to happen in an informed manner, taking into consideration the receiver of the referral and the resources and skills available to them.

Recommendations: It is recommended that a platform is created for OTs within a referral network to come together to discuss challenges faced. A database could be considered that captures resource availability and skills development on an ongoing basis to help inform plans for development and assistance and allow for informed referral pathways to be created.

Notes: *What is needed to make quality hand therapy happen in public hospitals?*

A review of patients with traumatic hand injuries attending the occupational therapy department at Mafikeng Provincial Hospital (S1.3)

Introduction: The occupational therapy (OT) department at Mafikeng Provincial Hospital (MPH) is referred a large number of traumatic hand-injured patients. MPH provides district and regional services to patients living in the largely rural central area of North West Province. Most patients are referred via the specialist orthopaedic and surgical teams at MPH and travel up to 150 km for treatment. Loss of hand function can be debilitating and comes at high personal, social and economic cost.

Objective: To conduct a review of statistical data kept by the OT department, to compile information on the patient profile and nature of hand injuries seen.

Results: Of the 481 referred patients from 2014 to 2017, 31.1% were female and 68.9% were male, and 62.0% injured the dominant hand. The most represented age group was 20–29 years, at 25.2% of total patients. The most frequent type of injury seen was wrist and/or finger fractures at 28.1%, followed closely by sepsis/abscess at 27.4%.

Discussion: Most patients injure their dominant hand. The predominance of sepsis was relevant; it can lead to significant long-term functional loss but is not well represented in teaching or research. Most patients are young (20–40 years old) and males and their injuries have potentially high impact in terms of required medical/surgical care, loss of economic activity, and associated psychological trauma. Demand for surgical intervention and rehabilitation of hand patients remains high, and infrastructure to provide these needs continued support, with consideration to the barriers to adequate rehabilitation and follow-up that rural patients experience.

Notes: *What is needed to make quality hand therapy happen in public hospitals?*

'Surthrival': the experiences of novice occupational therapists delivering hand-injury care in South Africa (S1.4)

Kirsty van Stormbroek, Tania van der Merwe,
Hellen Myezwa (University of the Witwatersrand, RSA)
Lisa O'Brien (Swinburne University, Australia)

Introduction: The responsibility for delivering hand rehabilitation to rural and underserved communities in South Africa falls to Community Service occupational therapists. They are known to work with limited supervision, support and resources. However, how these therapists should be supported in order to strengthen the services that they deliver, is not known. This study aimed to describe how these novice therapists describe their experience of delivering hand rehabilitation in order to identify their support and development needs.

Methods: A qualitative case study design was used. Data were collected from Community Service occupational therapists (n=9) who participated in an online Community of Practice in 2021. Data collection techniques included photo elicitation, facilitated reflection and case discussions. Reflexive thematic analysis was undertaken. Trustworthiness strategies included reflexive writing, prolonged engagement, data source triangulation, robust member checking and peer audit. All necessary ethical permissions were obtained.

Results: Analysis constructed three themes: 1. *Submerged: "I had to drown a little"* captured participants' experience of being saturated by contextual features including poverty and poor basic management of hand injuries. 2. *Starting somewhere* captured participants' journey of treating patients with hand injuries – moving from 'no idea' to 'some idea'; having their clinical reasoning challenged when working with unfamiliar presentations or without diagnoses; and contextual features commonly rendering traditional protocols inadequate. Finally, 3. *The dynamics of 'surthrival'* captured elements that contributed to participants either thriving, or merely surviving their hand rehabilitation experience.

Recommendations: The study identified key strategies to address the support and development of Community Service occupational therapists. Interventions related to: 1. *system and service* issues; 2. *Opportunities to develop necessary knowledge, skill and professional behaviours*; 3. *Appropriate physical resources*; and 4. *Emotional supports.*

Notes: *What is needed to make quality hand therapy happen in public hospitals?*

Hand Therapy on the move - taking hand therapy to harder to reach communities (S1.5)

Melissa Janine Westig, Kyra Steenkamp, Juane Visser, Amy Button,
Lauren Holman, Derryn Palmer, Zerilda de Kock, Anna Folly, Carla Jones,
Jess Joubert, Kirsty van Stormbroek (University of the Witwatersrand, RSA)

Introduction: One of the challenges of delivering hand rehabilitation services in under-resourced settings is the need to travel between numerous service sites and efficiently set-up a hand therapy clinic at each site. This case report presents a prototype of a portable hand therapy station, designed by South African occupational therapists working in under-resourced settings. This practice innovation seeks to be responsive to local evidence, the occupational profiles of patients, and the contextual realities of working in a low-resource setting.

Methods: A portable hand therapy prototype was developed by firstly documenting the challenges, practice realities and needs experienced by occupational therapists (n=9) working in a variety of low-resource settings, and reviewing local evidence. This information was then used to collaboratively design a travelling hand therapy station, kitted with items deemed essential for practising in rural and under-resourced areas.

Results: A travelling hand therapy "back-pack-on wheels" was designed. The kit includes appropriate assessment tools and equipment; contextually relevant activities to facilitate the use of occupation-based therapy; basic, replenishable and appropriate splinting materials. Additional recommended resources for inclusion in the kit include customizable home programmes responsive to language barriers; splinting regimes and wearing schedules; as well as other treatment modalities. Feedback from piloting the prototype is being used to refine the kit.

Conclusion: The appropriate resources and equipment is imperative to enable therapists to provide accessible hand rehabilitation services. This practice innovation provides a promising solution to this need. The customizable prototype offers universal and adaptable aspects to suit different clients and community needs and has further potential to be ordered for use in other settings or replicated in other LMIC countries using available resources. In pursuit of the vision of hand therapy being available to all South Africans, opportunities for the Department of Health to provide all community therapists with a hand therapy portable station will be explored.

Notes: *What is needed to make quality hand therapy happen in public hospitals?*

The Rural Hand Therapy Project: Supporting rural generalist occupational therapists to provide hand injury care (S1.6)

Sue Williams, Gillian Doherty (Toowoomba Hospital, Australia), Gail Kingston (Townsville University Hospital, Australia)
Anna Tynan (Darling Downs Hospital, Australia)

Introduction: Equality of hand therapy service provision is a global issue. In rural Australia, patients' access to hand injury care is impacted by: limited transport options; distance; staff shortages; and availability of therapists skilled in hand therapy. In 2019, we used service evaluation results and evidence from the literature to develop an alternate model of care (MOC) for supporting generalist occupational therapists (OTs) in rural areas who provide hand injury care. The model, the Rural Hand Therapy Project (RHTP), was trialed and it has become standard practise in our health service. The aim of this presentation is to discuss our model of care and present preliminary research findings.

Methods: We are currently undertaking a mixed method study to determine if the alternate MOC (RHTP) provides equitable patient care and to explore the rural therapists' experience of working within the RHTP. For the latter, qualitative, component of the study, 10 rural OTs were invited to participate in interviews to explore their experience of the new model.

Results: Preliminary results from the initial interviews suggest a general positive experience along with some barriers and enablers to implementation. OTs valued the key features of the new model of care: comprehensive referrals, weekly case conferences and clinical lead availability for shared care video-conferences. The clinical lead and staff in the RHTP provided valuable support during times of decreased rural staffing. All respondents indicated that the MOC increased hand therapy knowledge, and in some cases improved job satisfaction, amongst generalist therapists. Areas identified for additional support included: structured hand therapy specific education; increased funding for the clinical lead position to enable full-time support and guidance regarding consumables ordering.

Recommendations: Implementing a model of care similar to the RHTP can support generalist OTs to provide hand therapy care in rural and remote localities.

Notes: *What is needed to make quality hand therapy happen in public hospitals?*

'Gathering *and keeping* your wits': the experiences of generalist occupational therapists delivering hand-injury care in South Africa (S1.7)

Kirsty van Stormbroek, Tania van der Merwe,
Hellen Myezwa (University of the Witwatersrand, RSA),
Lisa O'Brien (Swinburne University, Australia)

Introduction: Hand rehabilitation in South Africa's public health service is by necessity frequently delivered by generalist occupational therapists who either don't have specialized training in hand rehabilitation, or who are required to work across areas of occupational therapy practice. They are required to competently deliver services to diverse populations and to maintain their competency across practice areas, including hand rehabilitation. This study aimed to describe these therapists' experiences of delivering hand rehabilitation in order to identify their support and development needs.

Methods: A qualitative case study design was employed. Six generalist occupational therapists were purposively sampled. Field visits were undertaken and in-depth interviews conducted with the therapists which were audio-recorded and transcribed. Direct observations and field notes were taken. Within-case and across case was conducted. Reflexive thematic analysis was used for the latter. A number of strategies were used to strengthen the credibility, transferability, dependability and confirmability of the findings.

Results: Five themes were constructed from analysis: 1. *Stressful and satisfying* captures the challenge of wearing 'multiple hats' as a generalist, responding to the gravity of a hand injury, the need to 'gather and keep your wits' and the process of feeling lost but finding a way. 2. *Learning journey* tracked the significance of undergraduate foundations, the transition to practice and continuous learning. 3. *Rising to the challenge* highlighted key enablers that supported therapists learning and practice. 4. *Traversing service and system change* captured to complexity and dynamic nature of the environments in which therapists worked and finally, 5. *Once upon a hand injury* captured the depth of patient and environment-related factors that therapists must consider as they deliver hand rehabilitation.

Recommendations: Strategies for the support and development of generalist occupational therapists delivering hand rehabilitation included *individual* strategies, *team and human resource* interventions, education recommendations, *service and system* interventions and *physical resources.* The range of intervention needs serve as an invitation for broad participation in supporting generalist therapists in delivering hand-injury care.

Notes: *What is needed to make quality hand therapy happen in public hospitals?*

Patient journey mapping: lessons from the experiences of patients receiving hand-injury care services in Gauteng, South Africa (S2.1)

Tsakane Sono, Kirsty van Stormbroek, (University of the Witwatersrand, RSA)

Introduction: Client-centred practice lies at the core of occupational therapy practice. Understanding the experiences of hand-injured patients accessing care is key to supporting care that is responsive to patients' needs. This study aimed to describe the journey of hand-injured patients through the healthcare system using the tool of journey mapping to enable an in-depth understanding of patients' experience of accessing hand-injury surgical and rehabilitation care services in South Africa, including occupational therapy intervention.

Methods: A qualitative descriptive design was used. Data collection was undertaken at one private and one public healthcare facility in the Gauteng Province. Twelve adult patients who had sustained traumatic hand injuries and had received surgery and occupational therapy for at least 6 months were recruited. Three data collection techniques were employed: a review of patients' clinical notes, a patient journey mapping exercise, and in-depth interviews. Reflexive thematic analysis (RTA) was undertaken to construct a qualitative account of participants' experiences from the time of injury across various touchpoints within the health care system. Rigor is being pursued through use of a reflexive journal, data source triangulation, member checking and dense description within reporting.

Results: Preliminary analysis constructed five themes: 1. *Spectrum of satisfaction* captured the range of experiences that contributed to either participant's satisfaction with services or their dissatisfaction. 2. *An emotional journey* conveys the substantial emotional and psychological impact that hand injuries had on participants and how this interacted with their recovery. 3. *'Now everything has stopped'* captured the impact of the hand injury on participants' occupational performance and participation. 4. *The cost* highlights the financial impact of the injury and healthcare; and finally 5. *The OT* communicates features of the interaction with the occupational therapist that charaterised participants 'experience.

Recommendations: Recommendations include the centrality of 'Batho Pele' or patient-centred care and services; the importance of recognizing and attending to the psychological and emotional consequences of traumatic hand injury (including support for patients' family); the need to focus on patients' 'precious doings' (individual meaningful and essential occupations); the need for effective pain management across phases of care; and hand-injury prevention in work environments. Finally, being affirmed as occupational therapy practitioners in the 'light' that OT brings in the 'fight' of recovery is something that we need to receive and continue.

Notes: *What is needed to make quality hand therapy happen in public hospitals?*

"This precious thing": Reflections on the psychological impact of a hand injury (S2.2)

Francois Te Water Naude (Service user, RSA), Ilande Vorster (Private Practice, Western Cape, RSA)
Kirsty van Stormbroek (University of the Witwatersrand, RSA)

Introduction: The first author sustained a severe traumatic hand injury while engaging in his woodwork hobby. He shares his hand-injury care experience and his journey through rehabilitation.

Methods: The interview, recording and editing was undertaken by Cape Town therapist, Ilande Vorster who was not involved in Francois's rehabilitation.

Results: He highlights the psychological implications of his injury and aspects of care that helped or hindered his adjustment. Francois conveys the gravity of a hand injury and the implications of injury to "this precious thing" - the human hand.

Recommendations: Francois outlines key recommendations for hand-injury care and the rehabilitation team including: 1. Acknowledge the psychological impact of hand injury; 2. Engage patients as thinking partners: orientate patients by clearly explaining the injury, interventions, prognosis and the reasoning behind decision-making; 3. Facilitate patients' ownership of their injury and recovery; 4. Take an interest in 'the person' and help them identify their own current needs and future plans for participation; 4. Routinely screen for psychological sequelae or need for additional emotional support and refer accordingly.

Notes: *What is needed to make quality hand therapy happen in public hospitals?*

The voice of occupational therapy service users (S2.3)

Lyndsay Koch & Fiona Breytenbach (University of the Witwatersrand, RSA)

Introduction: Service users are key stakeholders in curriculum development and review. Service users are experts in their own needs and can contribute to shaping occupational therapists to be user-led in their thinking and practice. This study aimed to describe service users' experiences of occupational therapy as part of a larger study informing a curriculum review at Wits University.

Methods: A quantitative descriptive survey design was used. The target population for this survey were occupational therapy service users in South Africa. Service users include people with disabilities, illness, injury or neurodiversity, as well as their parents or caregivers, who have received occupational therapy services. Demographic data and four open-ended questions regarding their occupational therapy experience were included in an online survey. Content analysis and descriptive statistics were used to analyse the data.

Results: A total of 30 service users completed the survey. Just over half of the participants (n=17) reported a positive experience with occupational therapy services, with improved physical, socioemotional or developmental skills and improved everyday functioning. Those with mixed or negative experiences described sessions that were not client-centred or therapists that were overly clinical, technical, or only offered rigid, non-adaptable treatment regimens. Participants described their ideal practitioner as being (1) knowledgeable and skilled, (2) compassionate in nature, (3) a creative problem-solver, (4) dedicated and (5) client-centred.

Recommendations: This study provides recommendations for occupational therapists with regards to treatment planning and fostering a therapeutic relationship with service users.

Notes: *What is needed to make quality hand therapy happen in public hospitals?*

'The hand belongs to someone': insights from a therapist perspective on patient compliance (S 2.4)

Kirsty van Stormbroek (University of the Witwatersrand, RSA)

Introduction: Compliance is considered to be a central element of effective health systems. In terms of rehabilitation, both non- attendance and non-compliance of patients with hand injuries in South Africa have been reported. This study explored how occupational therapists practicing in the field of hand therapy, understand compliance and its perceived barriers and supports.

Methods: A qualitative descriptive research design was employed. Nine occupational therapists who routinely treat patients with hand conditions were purposively sampled. In-depth interviews were conducted, transcribed and inductive thematic analysis undertaken.

Results: Therapists' understanding of compliance demonstrated elements of consensus and difference. Four themes captured participants' views of barriers and supports: compliance is enabled when a powerful collaboration exists between the client and the therapist. For this to be possible, the therapist needs to understand the life and times of an injured hand, co-constructing therapy on the foundation of understanding the patient as an occupational being. Powerful collaboration is further enabled by effective communication for collaboration, and lastly the characteristics of systems and services that work hold power to hinder or enhance compliance.

Conclusion: Results bare relevance to all therapists delivering hand rehabilitation, including generalist occupational therapists. Results suggest that collaborative co-authoring of the hand rehabilitation process is central to enabling compliance. Therapists require a robust understanding of the person they are treating and the complex context in which the person participates. Accessible communication, effective education and enabling systems and services are also vital. Furthermore, the way in which occupational therapists conceptualise compliance matters. Critical reflection is necessary to interrogate the philosophical assumptions that underpin the terminology that occupational therapists choose and how power is navigated in relationships with patients with hand injuries. Continual professional development spaces which enable therapists to reflect and develop their knowledge, skills and professional behaviours for supporting compliance is recommended.

Notes: *What is needed to make quality hand therapy happen in public hospitals?*

Factors which affect adherence of hand-injured patients & strategies to support adherence (S2.5)

Emily Maklouf & Kirsty van Stormbroek (University of the Witwatersrand, RSA)

Introduction: Patient adherence has a substantial impact on the achievement of hand rehabilitation outcomes. In South Africa, where majority of hand-injured patients are treated by generalist occupational therapists, it is essential to consider how these therapists can support the adherence of their patients. This study aimed to describe how occupational therapists understand 'patient adherence', the preferred term used to describe this concept, their perception of the factors affecting adherence, and the strategies used to support adherence.

Methods: A survey questionnaire, based on literature, was developed, and reviewed by experts for content validity. Data collection was completed online with a response rate of 52.7% (n=99). Closed-ended questions were analysed descriptively, and content analysis was used to analyse responses to open-ended questions.

Results: The use of the word 'compliance' was preferred by a majority of participants. Socio-economic, healthcare team/system, condition, therapy, and patient related factors were identified to act as both barriers and supports to patient adherence. Strategies that support patient adherence most frequently identified were educating patients on their conditions and therapy (33.3%), using 'teamwork' (17.2%) with the patients, and assessing the patients holistically (10.1%).

Recommendations: Generalist occupational therapists require the knowledge of factors that contribute to patient's ability to adhere to hand rehabilitation. They require opportunity to develop the necessary skills and professional dispositions to apply the strategies that support adherence. Accessible and affordable continuous professional development opportunities are recommended as a way in which this development can be facilitated.

Notes: *What is needed to make quality hand therapy happen in public hospitals?*

Patient experiences of shared decision making (S2.6)

Service users (Private Health Sector), Trish Griffiths (Private practice, RSA)
Kirsty van Stormbroek (University of the Witwatersrand, RSA)

Introduction: Shared decision making is an approach to healthcare where health professionals and patients make decisions together, using the best available evidence around the benefits and harms of each option, and where patients are supported to arrive at informed preferences.

Methods: As a relatively unfamiliar concept in the South African context, the first author reflected on the concept by capturing the stories of two patients who received private hand-injury care in Cape Town, South Africa.

Results: Both patients sustained metacarpal fractures but had distinctly different experiences of decision making in the initial phases of their care. The first patient was completely uninvolved in the decision-making around the management of his hand. He trusted his surgeon and did not have the knowledge to question whether alternate management options existed. Reflecting on a disappointing experience, in the future he would like to be involved in decision making, have an opportunity for his concerns to be addressed, and be given time to consider options and their implications. The second patient was "talked through" his options, the rationale behind these options, and the implications of each. He made an informed decision and reflected with satisfaction on the process and his functional outcome.

Recommended: It is recommended that shared decision making, that respects the autonomy, preferences, values and beliefs of patients, is enabled by all health professionals involved in hand-injury care

Notes: *What is needed to make quality hand therapy happen in public hospitals?*

Assessment during hand injury: friend or foe? (S3.1)

Susan de Klerk (Stellenbosch University, RSA)

Introduction: An essential part of hand therapy care comprises the comprehensive and accurate assessment of hand-injured patients. Assessment drives contextually relevant treatment and allows therapists to demonstrate the outcome of occupational therapy intervention. Aspects underpinning the overarching construct of assessment are the differentiation between measurement, assessment, and evaluation. It is postulated that these concepts need to be better understood and considered when decisions are made about for example the type of instrument used in clinical practice. In addition, it has been reported that occupational therapists working in this field focus on the assessment of aspect of body function and structure (such as strength and range of motion) rather than on aspect of activity and participation (occupation and occupational performance). Instruments are reported to be time-consuming and lack applicability within the practice context. There is concern that occupational therapists may presently be unable to provide contextually relevant intervention tailored to the patient's occupational needs and moreover, may be unable to provide evidence of the outcome of intervention. The latter is a threat to the scope and role of the occupational therapist in hand injury care within the South African health service contexts.

Recommendations: Recommendations include i) providing educational opportunities to novice occupational therapists to unpack the concepts of assessment, evaluation, and measurement, ii) ensuring occupational therapists have a basic understanding of the measurement properties of instruments and the importance of contextual evidence of said properties, iii) introduce the various types of measures (instruments) based on scope and iv) provide a rationale for choosing the correct measure, v) administering it appropriately and vi) utilising the results as intended.

Notes: *What is needed to make quality hand therapy happen in public hospitals?*

How can outcome measures inform hand injury rehabilitation in a specialized hand therapy unit? (S3.2)

Nicole Mottay-Bisram (Chris Hani Baragwanath Hospital, Gauteng)

Introduction: Patients with hand injuries is the leading diagnosis treated by occupational therapists at a Central Level Hospital in Gauteng. Flexor and extensor tendon injuries dominate the load with an average of 150 session's p/month. In order to evaluate if the extensor and flexor tendon protocols used were effective in occupational therapy, a monitoring and evaluation (M and E) system was introduced to determine a patient's progress through their rehabilitation.

Methods: Flexor tendon repairs- patients 18 years and older without thumb involvement and fractures were included. Extensor tendon repairs- patients 18 years and older without thumb involvement and fractures from zone 4-7 was included. Therapists took goniometric measurements at week 4, 6,8, and 12, QuickDash scores at week 6,8 and 12 and dynamometer readings at week 8 and 12 for flexor and extensor tendon repairs. Outcome measures namely TAM for flexors and Millers criteria for extensors was used. Information was de-identified, coded and entered onto an EXCEL M and E database for analysis. Analysed data was completed using descriptive statistics.

Results: Extensor tendon repairs had better functional outcomes between week 8 and 12 compared to flexor tendon repairs with an average QuickDash score of 23 (n=36) and 33 (n=101) respectively. Extensor tendon repairs -80% of patients presented with good-excellent outcomes according to Miller's criteria. Flexion loss was a concern with 61% of patients presenting with fair to good flexion loss. Flexor tendon repairs -76% of patients presented with fair to good outcomes based on TAM. Only 20% (n=112) of patients with flexor tendon repairs adhered to all appointments. Patients were referred to their local clinics or base hospitals between 8-12 weeks.

Recommendations: Use of outcomes measures can guide treatment decisions, review protocols to suit the patient's context, determine the need for training to local clinics, and help patients adhere to therapy.

Notes: *What is needed to make quality hand therapy happen in public hospitals?*

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Notes: *What is needed to make quality hand therapy happen in public hospitals?*

Complex Regional Pain Syndrome – early identification (S3.3)

Rosie Gospel (Private Practice, Australia)

Introduction: Complex Regional Pain Syndrome (CRPS) is known to cause much suffering, reduced function and can impact the ability of the affected individual to bring in an income. CRPS is more likely to progress to chronicity if it is not identified and given appropriate attention in the early stage.

Method: CRPS is identified using the Budapest Diagnostic Criteria which was adopted by the IASP Committee for Classification of Chronic Pain in 2012 (Harden et al. 2022). The Budapest Diagnostic Criteria is a checklist of signs and symptoms and can easily be administered by occupational therapists.

Results: If a patient meets the criteria for CRPS, the findings can be communicated to a doctor to rule out/in other possible reasons for the signs and symptoms. If CRPS is suspected, it is best to start therapy treatments specifically for CRPS, and tailored for the patient, as soon as possible.

Recommendations:
- Patients complaining of too tight casts or bandages should have these changed as soon as possible.
- Techniques that emphasize functional restoration are thought to be the most effective and involve a progression from activation of pre-sensorimotor cortices, to very gentle active movements to carrying light bags with the upper extremity. (Harden et al. 2022).
- Encourage general aerobic activity.
- Avoiding overly aggressive exercises or treatments (Harden et al. 2022).
- Consider using the low cost 'Casting Motion to Mobilise Stiffness' (CMMS) technique for addressing stiffness, swelling and pain.

Reference
Harden, N., McCabe, S., Goebel, A., Massey, M., Suvar, T., Grieve, S. & Bruehl, S. (2022). 'Complex Regional Pain Syndrome: Practical Diagnostic and Treatment Guidelines, 5th Edition'. Pain Medicine. 23(S1), S1-S53. Available at: https://doi.org/10.1093/pm/pnac046".

Notes: *What is needed to make quality hand therapy happen in public hospitals?*

Examining wound management in South Africa (S3.4)

Lezane Esterhuizen (Bertha Gxowa Hospital, Gauteng, RSA)
Deshini Naidoo & Pragashnie Govender (University of KwaZulu Natal, RSA)

Background: Internationally, it is within occupational therapists' scope of practice to provide interventions for the prevention of wounds, amelioration of wounds and to address occupational dysfunction resulting from wounds. In South Africa, however, the role of occupational therapy in wound management in hand therapy is unclear. This study aimed to describe current wound management practices and views of occupational therapists on their perceived role and preparedness for providing wound management to hand injured patients in South Africa

Methods: A cross-sectional survey was administered with a sample of 106 participants via non-probability convenience sampling. Frequencies and percentages are presented for quantitative data analysed with descriptive statistics. Open-ended responses were analysed via inductive thematic analysis.

Results: Findings indicated a high prevalence of wounds in patients with hand injuries. Occupational therapists in South Africa have reported experiencing a high demand for involvement in wound management interventions. The identified role of occupational therapists includes providing interventions for the amelioration of wounds and addressing occupational dysfunction resulting from wounds, amongst others.

Conclusion: Improved guidance on the role and scope of occupational therapy in wound management is required. This is a need within the South African context due to the high prevalence of wounds in populations of hand injured patients that occupational therapists serve.

Notes: *What is needed to make quality hand therapy happen in public hospitals?*

Flexor tendon rehabilitation protocol use amongst occupational therapists in South Africa (S3.5)

Jane Venter, Ancil Prinsloo (Private Practice, Western Cape, RSA)
Robin Joubert (University of KwaZulu Natal, RSA)

Introduction: The aim of this study was to investigate which protocols occupational therapists (OT's) use when rehabilitating clients with flexor tendon repairs as well as to investigate the therapist's knowledge of protocols in order to guide therapists and institutions in using effective methods within the South African context.

Methods: A questionnaire was sent to OT's in South Africa (Ethics number: HSS/0017/2011M).

Results: Of the 32 therapists who responded, 50% had more than 10 years' experience. 81.2% were private practitioners and 28% worked in the public sector. The trend for flexor tendon protocol use was: Early Active Mobilization -28.1%, a Kleinert-type protocol - 25% a Duran-type passive mobilization protocol -18.8%, and an Immobilization-type protocol - 3.1%. 83.3% continued the splint at 4 weeks but only 26.6% were using the splint at 6 weeks. At week 1, only 30% allowed active flexion of the fingers, whereas at week 4 and 5, 60% allowed active finger flexion. The main factors influencing protocol choice were the referring doctor and confidence in one's own skills. Resources available influenced the protocol choice, mostly through textbooks (90.6%), although journal articles were accessed (internet - 50%, hard copy - 62.5%). More than half of the sample attended courses regularly.

Recommendations: Therapists need to build their confidence, realising the efficacy of various protocols is similar, according to research. Junior therapists would do well with clearer departmental guidelines regarding protocol efficacy (least side effects, and most appropriate for specific patient populations). It was also noted that whatever factors influence protocol choice, they will likely not be critical to good outcomes.

Notes: *What is needed to make quality hand therapy happen in public hospitals?*

Management of upper limb pain in stroke survivors: the current practice of occupational therapists in South Africa (S3.6)

Jenna Cohen (South Rand Hospital, Gauteng RSA)
Fiona Breytenbach & Kirsty van Stormbroek (University of the Witwatersrand)

Introduction: Occupational therapists have an important role to play in the management of pain. However, it appears as though there is neglect of pro-active pain management by occupational therapists post stroke. This contrasts with the research that provides evidence that pain can be managed effectively with resultant improved quality of life. The current practices of occupational therapists in South Africa regarding prevention, assessment and treatment of post stroke upper limb pain is unknown. This needs to be identified so that best practice can be implemented and developed by occupational therapists in their management of stroke survivors.

Methods: The study followed a quantitative cross-sectional survey design using an online survey. The survey was checked by experts for content validity and was distributed through OTASA, SANDTA and social media between February and April 2023. Preliminary results were analysed using descriptive statistics.

Results: Preliminary results will be shared on the prevention strategies, assessment methods and treatment techniques that are being used by occupational therapists in South Africa in the prevention, assessment, and treatment of upper limb pain post stroke.

Recommendations: The results of this study can be used to inform occupational therapy practices regarding prevention, assessment and treatment of post-stroke pain and guide further research.

Notes: *What is needed to make quality hand therapy happen in public hospitals?*

Splints & immobilization approaches used for second to fifth metacarpal fractures: a systematic review (S3.7)

Monique Keller (University of the Free State[1] & University of the Witwatersrand[2] , RSA),
Roline Barnes[1], Corlia Brandt [2], Lauren Hepworth (Private Practice, KwaZulu Natal, RSA)

Introduction: The second to fifth metacarpal fractures are immobilised with splints, plaster of Paris (POP) or buddy strapping for a period of time. However, no recent evidence-based splinting and immobilisation programme exists for the management thereof. The gap in the literature to inform clinical practice may potentially lead to disability, poor hand function and health-related quality of life. This review aimed to review, appraise and collate the literature on splints and immobilisation approaches used for second to fifth metacarpal fractures after conservative and surgical management in adults aged 20 to 59 years.

Methods: The review included experimental study designs, quasi-experimental studies, and case-control and cohort studies from January 2008 to September 2018. Two reviewers independently screened, selected, appraised and extracted data from the included studies. Preferred reporting items for systematic reviews and meta-analysis (PRISMA) guided the reporting. Joanna Briggs Institute (JBI) critical appraisal tools were used to assess the risk of bias for each included study.

Results: A thousand and five articles were generated by the database searches and ten additional articles from a Google Scholar search were found. Ten articles were included: two randomised controlled trials (RCTs), one quasi-RCT, four prospective studies, one retrospective study, one retrospective record review and one comparative study. Descriptive reporting of the results followed the systematic review. High level 1b evidence [illegible] strapping and a soft wrap for three weeks with early active finger and wrist mobilisation are effective. A wide variety of splints and immobilisation approaches are used. Not immobilizing uninvolved fingers and commencing early active exercises with uninvolved joints were found effective.

Recommendations: In clinical practice, especially in community service, knowing the best-evidence splints and immobilisation used for second to fifth metacarpal fractures can guide therapists to manage patients, especially in resource-limited settings correctly. The best-evidence practices can potentially prevent disability, improve outcomes such as but not limited to hand function and improve health-related quality of life. No best-evidence-based orthotic device and immobilisation programme exists.

Notes: *What is needed to make quality hand therapy happen in public hospitals?*

Evidence-informed recommendations to support best practice for work-related transitions after hand-injury – a strategy to improve rehabilitation and outcomes (S3.8)

Helen Buchanan (University of Cape Town, RSA)
Lana van Niekerk & Karen Grimmer (Stellenbosch University, RSA)

Introduction: Successful participation in work is an important outcome following hand injury. The process of transitioning to work can be complex especially where access to rehabilitation is limited and therapist time and expertise is lacking. As there were no existing clinical practice guidelines to guide the return-to-work process after hand injury, we aimed to develop evidence-informed recommendations to support successful work transition for people with hand injuries.

Methods: We followed Schünemann et al's (2014) guideline development process and the 3-Tier CPG model (Machingaidze et al., 2018). Recommendations were built on narrative interviews on current occupational therapy practice, expert-informed clinical practice directives which built on the interview findings and were mapped to a 'usual' pathway of clinical decision-making in South African healthcare contexts, client and therapist perspectives of barriers to successful work transitions, and current best evidence extracted from a systematic evidence scan of the literature.

Results: The recommendations are linked to three phases of rehabilitation – acute (within the first seven days of seeing the patient), intermediate (1 week to 12 weeks) and longer term (12 weeks +). Each recommendation is mapped to its underlying level of evidence, and gaps noted where no evidence was identified. A draft list of Tier 3 ('How to do it') documents has been compiled to assist therapists to put the evidence into practice.

Recommendations: These evidence-based recommendations were developed to be contextually-relevant and feasible for implementation within the South Africa public health sector. The recommendations may prove useful in guiding novice occupational therapists to implement effective strategies for the transition to work process for people with hand injuries. It is hoped that the recommendations will contribute to improving rehabilitation services and work-related outcomes after hand injury.

Notes: *What is needed to make quality hand therapy happen in public hospitals?*

Innovative options for oedema reduction in hand injuries (S3.9)

Suzi Davey (LymphAfrica Pty LTD, Western Cape, RSA)

Introduction: This presentation on oedema management is for hand therapists to learn about effective in oedema reduction techniques and modern therapeutic treatment methods. We will present different types of oedema disease processes and introduce effective research-based tools to increase the resilience of patients through a home program of self-care and occupational well-being through manual lymph drainage and compression.

Methods: This presentation stems from my years of personal experience treating mainly geriatric patients in Miami, Florida USA, with oedema in hand therapy and lymphoedema due to various conditions including oncology treatments, trauma and post-surgical oedema complications to name a few. New research indicates that all oedema may now be characterized on the spectrum of lymphoedema and may be one of the most challenging of chronic conditions to remedy with existing therapeutic techniques. Lymphoedema management requires further post-grad education and certification training in the methods of Complete Decongestive Therapy (CDT). Patients present to healthcare professionals as medically complex due to other medical adversities, differential diagnoses and disease histories.

Results: Practice of this treatment provides therapists with a treatment strategy and novel approach to oedema management. Hands-on practical experience with Lymphatic Rehabilitation can effectively empower therapists and patients with skills to reduce oedema and enable self-care and provide an outline of techniques to use in their home environment. Contraindication apply and will be reviewed in the presentation.

Recommendations: Although hand therapy clients with oedema are referred to hand therapists for increased oedema, use of proper compression is vital in the patients healing journey.

Notes: *What is needed to make quality hand therapy happen in public hospitals?*

Supporting generalist occupational therapists in hand therapy - lessons from an expert clinician, educator and hand therapy leader *(invited presentation)* (S4.1)

Corrianne van Velze (Private Practice, Gauteng, RSA)

Corrianne van Velze is fondly known as the "mother of hand therapy" in South Africa. She obtained her undergraduate occupational therapy degree at Stellenbosch University in 1976 and her Masters degree at the University of the Witwatersrand in 1995. Corrianne was a founding member of the South African Society of Hand Therapists in the late 1980's and was instrumental in developing the first Post Graduate Diploma and Masters Courses in Hand Therapy at the University of Pretoria in 2001. She has acted as a consultant on hand injuries in the United Kingdom, Namibia and Turkey and has lectured in over 20 countries. Corrianne served on the International Federation of Societies of Hand Therapists (IFSHT) from 1989-2007, serving as the IFSHT President from 1998-2001. Corrianne has authored numerous scientific articles, books and teaching resources and has worked in both the public and private sector in South Africa. Corrianne continues to run a hand therapy private practice in Pretoria while keeping up her many hobbies and interests.

Notes: *What is needed to make quality hand therapy happen in public hospitals?*

A hand therapist's journey (S4.2)

Marti Simpson (Private Practice, KwaZulu Natal)

Introduction: This presentation reflects on the journey of becoming a hand therapist. The aim is to identify catalysts and barriers experienced on the journey, in order to develop insights for the development of novice therapists.

Methods: A South African Occupational Therapist, who has predominantly worked in the field of hand therapy over the past 14 years, reflected on her journey of becoming a hand therapist. Her reflection sought to identify variables that acted as either catalysts or barriers. Questions that guided reflection included 'what sparked an interest in hand therapy?' 'What facilitated progress?' 'What slowed the journey?' And 'When did the journey plateau?'

Results: The variables that sparked interest in hand therapy included: the quantity and quality contact with hand therapy patients; contact with colleagues seeking mentorship and being willing to offer mentorship in various aspects; and stimulating courses offering exposure to new techniques. Variables that facilitated progress were as follows: promoting evidence-based practice; focus on integration of knowledge after attending advanced courses in hand therapy as well as postgraduate studies; offering training to inexperienced occupational therapists. Development in the hand therapy journey was slowed down by variables such as: a lack and limited accessibility to mentors; limited free time; a high patient load with little focus on therapeutic outcomes; exposure to a more diverse clientele; finances limiting opportunities. It was noted that plateauing in progress was typically noted every 2 years, usually after a period of integration of new found knowledge. Exposure to variables that sparked interest facilitated progress anew.

Recommendations: When considering the development of occupational therapists we need to view them as individuals partaking a journey and offer accessible and phase specific pit stops along the way. Key variables that facilitate progress are to increase exposure to hand therapy patients within a setting of evidence based practice; to informalise mentorship (build a community of hand therapists and not a hierarchy of gatekeepers); to increase accessibility to courses and to decrease the burden of administration.

Notes: *What is needed to make quality hand therapy happen in public hospitals?*

Hand health for all: do undergraduate occupational therapy curricula respond to the call? (S4.3)

Kirsty van Stormbroek (University of the Witwatersrand, RSA)
Helen Buchanan (University of Cape Town, RSA)

Introduction:
The call for higher education curricula to be responsive to the South African context is growing louder. Injuries to the hand are common in South Africa and intervention is often provided by novice occupational therapists who may work in complex practice contexts with limited supervision. Comprehensive hand health practice addresses both the biomedical and occupational dimensions of the human hand. Undergraduate education programmes should be responsive to this reality in preparing graduates adequately for hand practice. This presentation describes the content of hand curricula within occupational therapy undergraduate programmes in South Africa with the purpose of considering how they prepare graduates for the practice realities they may face during community service.

Methods:
A descriptive cross-sectional survey design was used with an online questionnaire aimed at determining the nature and extent of hand curricula presented in South African undergraduate occupational therapy programmes (n=8). Data were analysed using Stata 12.

Results: Time allocated to hand impairments varied considerably across universities. While assessment of biomedical performance components were taught by all universities, the occupational perspective was limited. The range and number of hand conditions and treatment modalities that were taught also varied. Findings are discussed against the contextual realities of practice in South Africa, primary health care policy, and national and international minimum standards for the education of occupational therapists.

Recommendation: Core aspects of a hand curriculum are proposed as a means to enhance comprehensive hand health practice and to provide an adequate foundation of knowledge, skills and professional behaviours on which graduates can build.

Notes: *What is needed to make quality hand therapy happen in public hospitals?*

Continuous professional development opportunities for rural occupational therapists: insights for generalists delivering hand-injury care (S4.4)

Lindsay Bellingan, Rain De Jager, Temima Mayer, Sara Weinberg,
Caitlin Williams, Denise Franzen, Kirsty van Stormbroek (University of the Witwatersrand, RSA)

Introduction: More than one third of the South African population live in rural areas. A small minority of therapists are employed to deliver occupational therapy services to this population, including patients who require hand rehabilitation. These therapists typically work as generalists and need to be equipped for this role in rural settings. Little is known about therapists' continuous professional development (CPD) needs for this practice. This study thus sought to describe the CPD needs of rural occupational therapists in the South African public health.

Methods: A quantitative, descriptive, cross-sectional survey research design was employed. An online survey questionnaire was developed based on a review of the literature. To strengthen the content validity of the tool, four therapists with rural expertise reviewed the questionnaire. Descriptive statistics were employed to analyse close ended questions and content analysis was used for open-ended responses. Ethical permission for the study was obtained.

Results: Forty-eight (n=48) therapists responded to the questionnaire, representing a 40% response rate. The median age of participants was 27 years (Range: 22-57) and participants had a median of 2 ½ years of experience working in rural settings. The most readily available mode of CPD activity was online courses (n=39; 81%) although skills workshops were most frequently (n=36; 75%) and believed to be the ideal mode of delivery for CPD. Distance (n=43; 94%), cost (n=37; 77%), travel time (n=29; 60%), course relevance (n=27; 56%) and limited internet (n=25; 52%) were most frequently identified as barriers to CPD. A small majority (n=28; 58%) reported a lack of institutional support for CPD.

Recommendations: CPD opportunities for generalist OTs delivering hand-injury care in rural locations should employ innovative methods of delivering skills workshops. Course providers should respond to the barriers related to time, money and travel costs related to rural therapist attendance. Quality online courses should continue to be used but should be planned to accommodate internet availability issues. Strategies to strengthen institutional support for therapists' CPD should be actioned.

Notes: *What is needed to make quality hand therapy happen in public hospitals?*

Communities of Practice: a versatile vehicle for learning? (S4.5)

Kirsty van Stormbroek, Tania van der Merwe,
Hellen Myezwa (University of the Witwatersrand, RSA)
Lisa O'Brien (Swinburne University, Australia)

Introduction: Treating patients with, often complex, hand injuries and conditions is frequently the responsibility of Community Service occupational therapists working in rural and underserved communities. This is often daunting for this group of novice clinicians. This study sought to describe the experiences of these therapists and the realities of their practice in order to develop contextually responsive capacity strengthening strategies. An online Community of Practice was used as the forum for data collection but also presented opportunities for the support and development of participants' hand rehabilitation expertise. The aim of this presentation is to describe participants' experience of participating in the Community of Practice.

Methods: A qualitative case study design was employed. Nine occupational therapists in their first year of clinical practice participated in an online (MS Teams and WhatsApp) Community of Practice between July 2021 and January 2022. Six participants were placed in rural areas and three worked in urban or peri-urban areas across five provinces. Data were collected using diverse techniques. Data included in this presentation were collected through an anonymous online survey. Thematic analysis was undertaken. Strategies to ensure the trustworthiness of data included prolonged engagement, audit trail, reflexive writing and member checking.

Results: Seven (n=7) of the nine participants completed the feedback survey. Analysis generated three themes: the online Community of Practice acted as a 1. *Versatile support* in which participants felt helped and supported, were able to share and access resources and were able to access immediate assistance for their clinical practice. In addition, the Community of Practice acted as a 2. *Vehicle for learning* that facilitated mutual learning, the acquisition of knowledge and skill, reflection, clinical reasoning and access to expertise and mentorship. Finally, the Community of Practice also proved to be *3. Professionally grounding* providing opportunity for participants to strengthen their occupational identity, consolidate core professional values and grapple with professional issues relevant to the community contexts in which they were working.

Recommendations: Communities of Practice are a promising means to provide the multi-faceted learning and support opportunities that Community Service occupational therapists need for delivering hand rehabilitation. Future research should include up-scaling this intervention to include numerous facilitators who receive training to each facilitate a group of Community Service occupational therapists and are remunerated with continuous education units.

Notes: *What is needed to make quality hand therapy happen in public hospitals?*

Reviewing training methods for generalist occupational therapists in basic hand therapy (S4.6)

Marti Simpson (Private Practice, KwaZulu Natal, RSA)

Introduction: *Introduction to Hand Therapy* is a course aimed at improving the hand therapy clinical reasoning of inexperienced occupational therapists. The course has been presented as an in-person and online course. The aim of this presentation is to determine participants' preference for online or in-person presentation, and the factors that affect this preference.

Methods: Emails (n=226) were sent to participants who have completed the course. Anonymous responses from 34 (15%) participants was received. The questionnaire probed why further education was sought; the way information was presented; whether integration was perceived to be achieved; and which other variables should be considered to enhance learning.

Results: A majority of participants had < 1-year experience and signed up to access information. Participants feel that undergraduate studies did not prepare them for hand therapy; They felt overwhelmed when treating with little supervision. There was no clear preference in the format of the course. Advantages of in-person courses: present for demonstrations; increased interaction, community and mentorship; access to bulk information. Disadvantages: overwhelmed by information; less accessible (location, leave and finances). Advantages of the online platform: enough time to process information; can re-access videos to facilitate long-term integration; improved accessibility; mentorship if needed. Disadvantages: Less interaction; video demonstrations; lacks community. Positive subjective experiences gained: increase for passion for hand therapy and learning; improved clinical reasoning and confidence. Participants who felt overwhelmed tended to be associated with the following: in-person attendance; little experience in the field. Most of these participants still felt that they increased clinical reasoning and passion. Therapist currently practicing hand therapy reported a higher level of integration of knowledge, and course notes were still regularly referred back to._Three participants were dissatisfied with course outcomes. Additional variables included: exposure to hand therapy; and learning styles requiring more interaction. Participants argued both for access to bulk, and smaller amounts of information. Variables to assist learning: increased practical exposure; improve undergraduate training; mentorship; community amongst therapists; accessible courses (location; finances; time); social media; accreditation in South Africa as incentive.

Recommendations: In-person and online platforms can both be successfully utilized when being aware of the various strengths and weaknesses. Online platforms are accessible and allows pacing of information. In-person training facilitates interaction; community and practical exposure.

Notes: *What is needed to make quality hand therapy happen in public hospitals?*

Policy-based principles for hand rehabilitation services in South Africa (S4.7)

Kirsty van Stormbroek, Tania van der Merwe,
Hellen Myezwa (University of the Witwatersrand, RSA)
Lisa O'Brien (Swinburne University, Australia)

Introduction: Policy seeks to guide and strengthen service delivery. However, a gap frequently exists between policy and practice hindering the development of services. Additionally, if our health services are to be contextually responsive, this necessitates being guided by policy. Policy direction is required for rehabilitation in general, and hand rehabilitation specifically. This study aimed to develop policy-based principles for hand rehabilitation services delivered by occupational therapists in South Africa.

Method: A descriptive qualitative research design was employed. Twenty-nine (n=29) local and international policies were included in analysis. Ritchie and Spencer's (1994) framework analysis was employed. *Familiarization* was achieved through reading a hardcopy of each policy. *Identifying a thematic framework* was undertaken by a review of literature relating to models of care (MOC) (study objectives) as well as considering Walt and Gilson's (1994) policy analysis triangle. *Indexing and charting* of each policy was completed using NVivo 12 framework matrices. The completed matrices were downloaded to Microsoft Excel where *mapping and interpretation* was used to reduce the data to a set of principles.

Results: Eighteen generic rehabilitation principles were constructed that speak to **the "why"** (*1. full participation & inclusion* and *2. equity & equality*), **"what"** (*3. accessible services, 4. quality patient-centred care, 5.occupational focus; 6. work interventions; 7. truly comprehensive care*), **"how"** (*8. a seamless system; 9. intersectoral action for vital communities; 10. empowered clients; 11. a vital workforce; 12. responsive & anticipatory; 13. key health system inputs; 14. data for service improvement; and 15. networks & partnerships*), **"who"** (16. A role for the specialist and generalist OT), **"when"** (17.Phases: the 'when' of care) and **"where"** (18. Settings: the 'where of care') **of rehabilitation services**. These are presented as preliminary results.

Recommendations: "So what?": Key applications of these policy-derived principles are applied to hand therapy services and practice in South Africa with practical resources highlighted to enable 'doable take- homes'.

Notes: *What is needed to make quality hand therapy happen in public hospitals?*

Appendix I: CDC Programme

SUPPORT & DEVELOPMENT
OF GENERALIST OTs
DELIVERING HAND THERAPY

SCIENTIFIC PROGRAMME

CONSENSUS DEVELOPMENT CONFERENCE

FRIDAY 24 FEBRUARY 2023
PRETORIA | CSIR CONVENTION CENTRE

07:45 ***Registration*** | *Tea & Coffee*
Gafeedha Osman — Conference administrator

08:15 **Welcome & introduction**
Daleen Casteleijn — Conference Chair

SESSION 1

08:30 Working in the dark: The need for contextually responsive educational resources in hand therapy (S1.1)
Nicola Ehlers (Leratong Hospital, Gauteng, RSA)

08:40 Effective referral: barriers & concerns (S1.2)
Desré Bates (Tygerberg Hospital, Western Cape, RSA)
Susan de Klerk (Stellenbosch University, RSA)

08:50 A review of patients with traumatic hand injuries attending the occupational therapy department at Mafikeng Provincial Hospital (S1.3)

09:00 'Surthrival': the experiences of novice occupational therapists delivering hand-injury care in South Africa (S1.4)
Kirsty van Stormbroek, Tania van der Merwe,
Hellen Myezwa (University of the Witwatersrand, RSA)
Lisa O'Brien (Swinburne University, Australia)

09:15 Hand Therapy on the move - taking hand therapy to harder to reach communities (S1.5)
Melissa Janine Westig, Kyra Steenkamp, Juane Visser, Amy Button,
Lauren Holman, Derryn Palmer, Zerilda de Kock, Anna Folly, Carla Jones,
Jess Joubert, Kirsty van Stormbroek (University of the Witwatersrand, RSA)

For more information contact Gafeedha Osman sasht.conference1@gmail.com

09:25 The Rural Hand Therapy Project: Supporting rural generalist occupational therapists to provide hand injury care (S1.6)

Sue Williams, Gillian Doherty (Toowoomba Hospital, Australia), Gail Kingston (Townsville University Hospital, Australia) , Anna Tynan (Darling Downs Hospital, Australia)

09:40 'Gathering *and keeping* your wits': the experiences of generalist occupational therapists delivering hand-injury care in South Africa (S1.7)

Kirsty van Stormbroek, Tania van der Merwe, Hellen Myezwa (University of the Witwatersrand, RSA), Lisa O'Brien (Swinburne University, Australia)

10:00 *Questions & Discussion*

10:30 – 10:50 TEA

SESSION 2

10:50 Patient journey mapping: lessons from the experiences of patients receiving hand-injury care services in Gauteng, South Africa (S2.1)

Tsakane Sono, Kirsty van Stormbroek, (University of the Witwatersrand, RSA)

11:00 "This precious thing": Reflections on the psychological impact of a hand injury (S2.2)

Francois Te Water Naude (Service user, RSA), Ilande Vorster (Private Practice, Western Cape, RSA) Kirsty van Stormbroek (University of the Witwatersrand, RSA)

11:15 The voice of occupational therapy service users (S2.3)

Lyndsay Koch & Fiona Breytenbach (University of the Witwatersrand, RSA)

11:25 'The hand belongs to someone': insights from a therapist perspective on patient compliance (S 2.4)

Kirsty van Stormbroek (University of the Witwatersrand, RSA)

11:35 Factors which affect adherence of hand-injured patients & strategies to support adherence (S2.5)

Emily Maklouf & Kirsty van Stormbroek (University of the Witwatersrand, RSA)

11:45 Patient experiences of shared decision making (S2.6)

Service users (Private Health Sector), Trish Griffiths (Private practice, RSA) Kirsty van Stormbroek (University of the Witwatersrand, RSA)

12:00 *Questions & Discussion*

12:30-13:15 LUNCH

SESSION 3

13:20 Assessment during hand injury: friend or foe? (S3.1)

Susan de Klerk (Stellenbosch University, RSA)

13:30 How can outcome measures inform hand injury rehabilitation in a specialized hand therapy unit? (S3.2)

Nicole Mottay-Bisram (Chris Hani Baragwanath Hospital, Gauteng)

13:40 Complex Regional Pain Syndrome – early identification (S3.3)

Rosie Gospel (Private Practice, Australia)

13:50 Examining wound management in South Africa (S3.4)

Lezane Esterhuizen (Bertha Gxowa Hospital, Gauteng, RSA)
Deshini Naidoo & Pragashnie Govender (University of KwaZulu Natal, RSA)

14:00 Flexor tendon rehabilitation protocol use amongst occupational therapists in South Africa (S3.5)

Jane Venter, Ancil Prinsloo (Private Practice, Western Cape, RSA)
Robin Joubert (University of KwaZulu Natal, RSA)

14:10 Management of upper limb pain in stroke survivors: the current practice of occupational therapists in South Africa (S3.6)

Jenna Cohen (South Rand Hospital, Gauteng RSA)
Fiona Breytenbach & Kirsty van Stormbroek (University of the Witwatersrand)

14:20 Splints & immobilization approaches used for second to fifth metacarpal fractures: a systematic review (S3.7)

Monique Keller (University of the Free State[1] & University of the Witwatersrand[2] , RSA),
Roline Barnes[1], Corlia Brandt [2], Lauren Hepworth (Private Practice, KwaZulu Natal, RSA)

14:30 Evidence-informed recommendations to support best practice for work-related transitions after hand-injury – a strategy to improve rehabilitation and outcomes (S3.8)

Helen Buchanan (University of Cape Town, RSA)
Lana van Niekerk & Karen Grimmer (Stellenbosch University, RSA)

14:40 Innovative options for oedema reduction in hand injuries (S3.9)

Suzi Davey (LymphAfrica Pty LTD, Western Cape, RSA)

14:50 *Questions & Discussion*

15:15 – 15:30 TEA

SESSION 4

15:30 Supporting generalist occupational therapists in hand therapy - lessons from an expert clinican, educator and hand therapy leader *(invited presentation)* (S4.1)

Corrianne van Velze (Private Practice, Gauteng, RSA)

15:45 A hand therapist's journey (S4.2)

Marti Simpson (Private Practice, KwaZulu Natal)

15:55 Hand health for all: do undergraduate occupational therapy curricula respond to the call? (S4.3)

Kirsty van Stormbroek (University of the Witwatersrand, RSA)
Helen Buchanan (University of Cape Town, RSA)

16:05 Continuous professional development opportunities for rural occupational therapists: insights for generalists delivering hand-injury care (S4.4)

Lindsay Bellingan, Rain De Jager, Temima Mayer, Sara Weinberg,
Caitlin Williams, Denise Franzen, Kirsty van Stormbroek (University of the Witwatersrand, RSA)

16:15 Communities of Practice: a versatile vehicle for learning? (S4.5)

Kirsty van Stormbroek, Tania van der Merwe,
Hellen Myezwa (University of the Witwatersrand, RSA)
Lisa O'Brien (Swinburne University, Australia)

16:25 Reviewing training methods for generalist occupational therapists in basic hand therapy (S4.6)

Marti Simpson (Private Practice, KwaZulu Natal, RSA)

16:35 Policy-based principles for hand rehabilitation services in South Africa (S4.7)

Kirsty van Stormbroek, Tania van der Merwe,
Hellen Myezwa (University of the Witwatersrand, RSA)
Lisa O'Brien (Swinburne University, Australia)

16:45 Questions and Discussion

17:15 Close

Daleen Casteleijn (Conference Chair)

Appendix J: Ideas ranked by stakeholders in each of the ten priority areas

Policy, leadership and governance	
Priority actions:	Relative importance (%)
Increase access to therapy for patients* by increasing posts in the public service (*decentralising services to 'take therapy to the user	10,71
Improve access to transport for patients to attend follow-up	9,29
Provision of therapy assessment and treatment tools and materials	9,29
Leverage increased budget for therapy	7,14
Improved data collection to advocate for budget increases and additional posts	7,86
Improve leadership and management skills transfer	5,71
Plan for impact of loadshedding on services & training	5,00
Implement human resourcing retention plan that will ensure that every Community Service occupational therapist as an on-site occupational therapy supervisor	5,00
Establish leadership for hand therapy service development and support	4,29
Incentivise mentorship for occupational therapists	3,57
Provision of training in Department of health systems, resources, government-based training	3,57
Improve knowledge transfer in hand-overs for service continuation	2,86
Provision of adequate profession-specific supervision	2,86
Ensure novice therapists work within a multidisciplinary team (and not alone) that provides mutual support and learning	2,86
Rehabilitation awareness raising: Raise awareness around the existence and availability of hand therapy and rehabilitation services	2,14
Explore & develop guidelines for use of telehealth	2,14
Orientation to policies and procedures for junior staff (eg. supply chain management, ordering, human resources	2,14
Provision of comprehensive & clearly defined packages of care across all levels	2,14
Advocacy for appropriate level of evidence required for NHI. (ie. Level 1 evidence is often impractical & unethical in general day to day clinical practice	2,14
Define scope of practice for PT, OT and other team members (OTA, OTT etc) with consideration for interprofessional practice	1,43
Establish professional body for orientation and mobility specialists	1,43
Garner support, through use of evidence, for the prevention and treatment of hand injuries	1,43
Improve access to healthcare records to respond to patient migration	1,43
Employers to support continuous professional development of therapists	1,43
Establish framework of practice for OTs, OTAs and OTTs	0,71
Cross-sectional studies or a registry that is POPI & HPCSA compliant	0,71
Implementation of profession-specific monitoring and evaluation	0,71
Facility planning & design to respond to rehabilitation needs and requirements	0
Total:	100,0

Education and training : undergraduate	
Priority actions	Relative importance (%)
Inclusion of hand therapy fieldwork & practical/clinical learning opportunities (in public and/or private sector)	19,29

Strengthen teaching & learning to include*	17,14
Strengthen undergraduate hand therapy education to ensure basic competence as the start of lifelong learning	12,86
Hand therapy teaching to be presented/co-presented by therapists with clinical hand therapy experience and should include practical skills sessions and case presentations	10,71
Focus training on clinical reasoning and skill development to enable flexible, activity-based treatment	10,71
Prioritise anatomy and biomechanics, then wound care and tissue healing as foundations for clinical reasoning	10,71
Present hand therapy as separate module	7,14
Include hand therapy topics in undergraduate research	6,43
Increase exposure to clinical hand therapy for students to explore and develop newly acquired knowledge in an environment that is not "for marks"	5,00
Total:	**100,0**

Education and training : postgraduate	
Priority actions	Relative importance (%)
Develop specialised hand therapy modules [e.g. lymphedema management, wound care, splinting, management of a stiff hand, management of sepsis	11,43
Accredited modular hand therapy postgraduate course: 10 modules + mini-dissertation = MSc; portion of modules= postgraduate diploma, OR single modules	10,71
Strengthen postgraduate hand therapy education	10,00
Provide practical skills training in every province that is responsive to local needs and resources	9,29
Equip specialist generalists who share expertise with other generalists on a specific condition [Project ECHO model]	8,57
Use of case discussions to share knowledge & develop support	7,14
Use journal clubs to support evidence-based practice	7,14
Mentorship	7,14
Use of case presentations with MDT across levels of care to develop hand management expertise across referral pathway	6,43
Provide in-service training within clusters in public sector (theory & practical)	5,71
Training in contemporary, relevant technologies e.g. 3D printing	5,00
Support lifelong learning	4,29
CPD courses tailored to need (demographics, burden of disease)	4,29
Emphasis on wound healing and oedema management to prevent secondary complications	2,86
Total:	**100,0**

Supervision and support	
Priority actions:	Relative importance (%)
CoPs, mentorship, courses, seminars, case discussions to increase competence (from unconscious incompetence)	16,43
Establish effective mentorship programs/ opportunities	14,29
Provide exposure to research opportunities / mentoring in research	12,14
Mentorship programs with a clinical lead in each service cluster	12,14
Real-time expert support	10,00
Induction & role-modelling for junior therapist	9,29
Create opportunities for face-to-face networking	8,57
Psychological support for vulnerable therapists	7,14
Establish Communities of Practice	6,43
Therapist to advocate for their patients and attend ward rounds to give feedback	3,57

Total:	100,0

Professional knowledge and skill	
Priority actions:	Relative importance (%)
Develop competence in a problem-solving approach: sound clinical reasoning, built on knowledge of basic sciences (anatomy, physiology & pathology), knowledge of the patient, sound assessment & basic treatment techniques	20,00
Develop competence in holistic view and assessment of the client and their environment (including support structures, financial implications, burden of care etc.	9,29
Develop robust knowledge of the community that they are working with (resources, types of work, cultural practices, stigma etc.	8,57
Develop integrated clinical reasoning	8,57
Develop competence for effective patient education	6,43
Develop competence for delivering client-centred (rather then disease-centred) services	6,43
Develop resourcefulness	5,71
Develop competence in communicating and exercising the contribution of occupational therapy within but also beyond the healthcare setting	5,71
Develop splinting skill	4,29
Develop competence to deliver occupation-based therapy	4,29
Develop competence in empathic communication* developed from undergraduate across lifelong learning continuum. (*Communication that transcends language, age, culture etc.)	4,29
Develop competence in use of outcome measures	3,57
Develop competency in low-tech hand therapy modalities (eg. activities and exercise) & not just splinting	2,86
Develop competence for delivering therapy in groups	2,86
Develop competence to conduct patient screening & education of MDT	2,14
Develop competence for supporting adherence	2,14
Develop competence for supporting patients to be active and empowered services users	1,43
Develop competence in note-keeping to support continuity & improved patient care	1,43
Total:	100,0

Professional attitudes, behaviours and dispositions	
Priority actions:	Relative importance (%)
Lead by example: be open to teach during sessions, facilitate and nurture passion for hand therapy by what you do as a supervisor and how you do it	11,43
Be client centred: engage with the patient about more than just the clinical aspects	11.43
Facilitate active patient participation & understanding of their role in recovery, utilising opportunities in therapy for counselling, teaching & learning, provision of work letters	11.43
OT to be confident to take clinical lead for hands in MDT	10,00
Collaborate with patients for goal setting and therapy directions	9,29
Students to develop emotional intelligence and resilience	7,86
We're all learning – be open to it (learning)	5,71
Be willing: take 'me' out of the equation and think 'we	5,71
Stop gatekeeping knowledge!	5,00
Support and consider the perspectives and challenges of colleagues, along with your own	4,29
Ask for help!	4,29
Reflect on our attitudes to strengthen positive patient interactions for strong therapeutic relationships	4,29
Take responsibility: take action, make a change however small, each individual leads to a collective difference	3,57
Be approachable & transparent!	2,86
Renew commitment to genuine care & patient-centred practice	2,86

Resources

Priority actions:	Relative importance (%)
Open access, app-based repository of multidisciplinary information and resources (clinical guidelines, information on conditions, & home programmes etc.)	12,86
Clinical guidelines for rural based practitioners by expert hand therapy practitioners with rural based experience & global south evidence; reviewed every few years	11,43
Portable hand therapy toolkit (responsive to contextual factors) available on tender	7,14
Home program repository of evidence-based, illustrated, tried-and-tested and multi-language	7,14
Access to literature /evidence	6,43
Explore reusable, recyclable, environmentally friendly splinting material	6,43
Structured support platform to share and develop as therapists	6,43
Develop MDT-based SOPs that are app-based, updated with latest info, and downloadable for off-line use standard operating procedures for patient management	6,43
Improved access to tender products & processes	5,71
Identify key role-players who can assist with accessing resources/information around processes	5,71
Simple phrase book available in 11 languages suitable for patient assessment and treatment and building rapport	5,00
Development of peer-support services	4,29
Accessible clinical notes (enabled by effective system) from specialist intervention to community care to enable seamless continuity of care	3,57
Patient app (application) to make information accessible online, book appointments etc.	3,57
Second-hand splinting material donation drop-off points for rural/underserved/novice therapists to practice	2,86
Education for novice therapists on splinting material procurement	2,86
Develop guideline for educating patients effectively	2,14
Total:	100,0

Data and evidence for service improvement	
Priority actions:	Relative importance (%)
Collect quality data on the burden of disease and outcomes	16,43
Communicate evidence /research findings to the right audience, in the right way (format & language), on the most appropriate platform	10,00
Collect comparable (uniform) data across facilities and enable appropriate access to data for service improvement	10,00
Enable good record keeping and statistics for service delivery and policy development	10,00
Use statistics to establish local burden of disease to inform content of CPD courses for clusters	10,00
Routine patient evaluation of their experience of therapy and achievement of therapy goals	8,57
Build capacity and provide resources to support therapists in conducting clinical research	8,57
Increase high quality research to support the practice of undergraduate, community service and independent practitioners	7,14
Translate the work done by OTs in rural, remote and underserved (eg. clinics) into acceptable form of evidence for NHI	4,29
Produce high quality, contextually relevant evidence	4,29
Partner with institutions to collect quality data and deliver quality hand therapy, progressively learning and adjusting	4,29
Gather evidence from service users to support the role of the OT	3,57
Actively involve interested therapists and therapy assistants in research related to their work	2,86
Intersectoral systems approach	
Priority actions:	Relative importance (%)

Develop decentralised, balanced services across all levels of care	15,71
Improve surgical outreach services to rural areas	13,57
Partnership between public and private sector to extend hand therapy services	12,86
Develop hand-injury prevention interventions	11,43
Work with multiple sectors (intersectoral collaboration) and stakeholders to address the social determinants affecting patient outcomes. Eg. work, transport	10,71
Pursue ethical, sustainable and environmentally conscious hand therapy practice	9,29
Strengthen resources for improved collaboration with employers to improve patient outcomes	8,57
Adopt a Community-based rehabilitation (CBR) approach	7,86
Integrate the role and needs of the family into therapy	6,43
Support development of peer- and community-based patient support	3,57

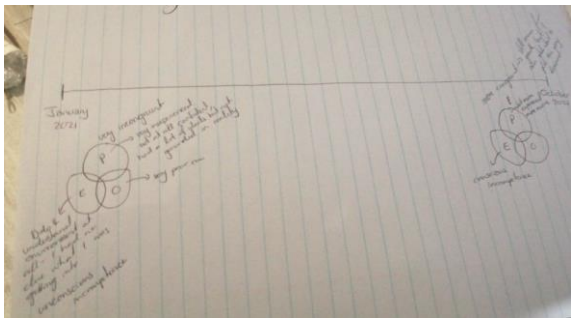
Effective referral and care pathways	
Priority actions:	Relative importance (%)
Strengthen multidisciplinary referral routes & communication channels across levels of care within and beyond service clusters, fostering a sense of community and cohesion within each cluster	28,57
Implementing standardized pro-forma referral document including all information necessary for case discussion, standardized assessment forms etc	27,14
Strengthen intra-hospital referral (MDT: OT, PT, psychologist, social worker etc) through education on the role of the OT (presentations, on ward-rounds, during case discussions	25,00
Developing region/area-specific algorithms for referrals to tertiary. Algorithms can be condition-specific and include ideas for treatment prior to referral	19,29

Inter-and intra-disciplinary action and cohesion	
Priority actions:	Relative importance (%)
Develop cohesive multidisciplinary teams orientated towards patient outcomes/goals, and characterised by shared power, mutual respect and a regard for each members' contribution	18,57
Improve communication between surgeons & therapists through effective modes (eg. applications)	15,00
Provide support and education for all health professionals (OT, PT, Nurse, Doctor) delivering hand-injury care at a primary (or lower) level of care to improve patient outcomes and prevent secondary complications eg. sepsis	14,29
Train therapists in an interprofessional environment to prepare them for interprofessional practice	12,86
Strengthen cohesion and collegiality within the hand-injury care multi-disciplinary team	11,43
Establish and develop hand clinics on Global South evidence	11,43
Engage in regular MDT ethics and clinical case discussions	9,29
Strengthen cohesion and collegiality within the OT profession	7,14

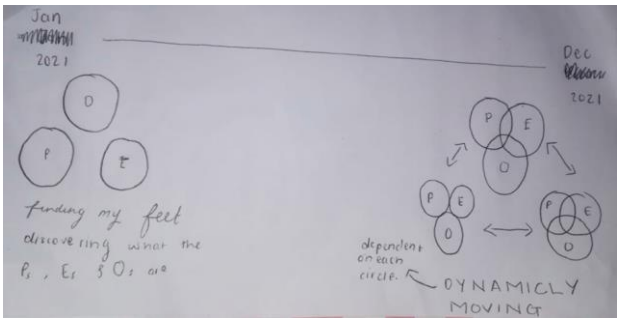
Appendix K: Pseudonyms and vignette excerpts from Study 2 A and 2B

Community Service Occupational Therapists	
Pseudonym Study 2A	**Key features of experience (Manuscript 3)**
1. Illusionless Optimist	*'An environment so poorly resourced grounded my excitement: I had no idea how to provide hand therapy…Feelings of futility…even when you know what is wrong and what should be done, patients still aren't able to get the help that they need'*
2. Dedicatedly Winging-it	*'Most overwhelming thing I've ever experienced…serious hand injuries…no undergraduate hands experience, no OT colleagues, supervisor 20 km away… this shouldn't be allowed…At times I dissociated…to cope…but it got better'*
3. Eager and Willing	*'Most of my patients have chronic conditions…with limited knowledge and experience and very few resources it's very difficult to feel like I'm actually able to help patients achieved improved function'*
4. The Bad Grad	*'I knew nothing coming from uni – I felt like an official bad grad but thankfully I had a supervisor who was a hands expert…we spent lots of our time dealing with late referral tendon injuries and trying to fix doctors mistakes'*
5. Tired and Trying	*'Hands has been frustrating – I often had no idea what to do. Yet it was rewarding when I got it right…working in an underdeveloped and strained system was hard and I needed a psychologist to make it through the year'*
6. Anx-cited Outsider	*'a world so different to the one I know…(I'm) out of place and out of my culture'*
7. Find-a-way OT	*'Hand therapy is challenging and my clinical reasoning is being put to work…patients are deeply grateful for any service that I'm able to offer…but resources are…limited and support and supervision…less than I need'*
8. Solo Worker Bee	*'I drive from clinic to clinic, carrying the world (assessment and treatment resources)…many of (the patients) have chronic hand conditions but don't have formal diagnoses. Seeing what I can do summarises my experience…burnout is real"*
9. The Growing Therapist	*'Hands was daunting to start with and I lacked confidence…but with time I became for comfortable with hands and enjoyed treating these patients'*
Generalist independent practitioners	
Pseudonym Study 2B	**Key features of experience (Manuscript 6)**
10. Just Beyond a Just-right Challenge	*'There aren't enough clinic therapists: She's supposed to be seeing patients with acute or sub-acute hand injuries. The rest of rehabilitation should happen at primary level but the clinic therapists are also overwhelmed. She remains torn between doing a sustainable minimum…and aiming for full functionality with each patient.*
11. Learning to (Butter)fly	*'Her first year shook passivity out of her…if she didn't learn her patients would suffer…translating her acquired knowledge into practice was anything but smooth…hijacked by her anxiety and wavering confidence'*
12. Capable, Calm and Called	*'She started her morning with a CP patient…she's just finished with a stroke patient…you join her for a patient with a full house injury…a sense of switching to a different cognitive filing cabinet shows on her face: she reads the patients file and then consults some preparation notes she made from an online hands course that she's doing…'*
13. Sassy for the Sake of the Service	*'She strives to be decent at everything and hands is challenging for her. But she's comfortable admitting that she doesn't know – especially with hands… patients can access good surgery… but then are told 'don't use your hands for the next three weeks'…many people don't adhere…the perverse incentive of accessing a disability grant is common…'*
14. Long-service Specialist-of-sorts	*'Three decades into an occupational therapy career…he's familiar with services, understands prognoses and makes clinical decisions with greater ease'*
15. Different in the Lallies	*'Minor injuries that turn to major sepsis are common…people live far from the hospital and don't have money to come for follow-up...it's not unusual to make a splint from a gutter sourced in a scrap yard'*

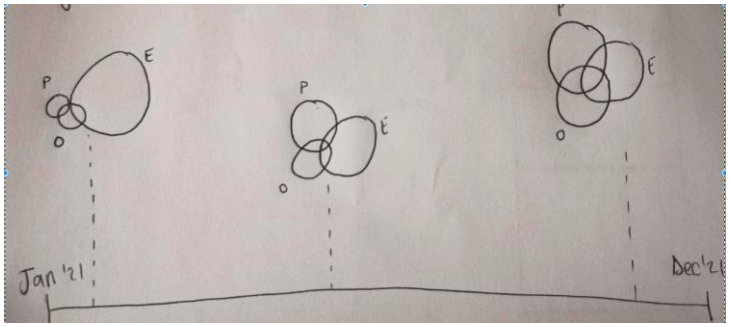
Appendix L: Study 2A raw data of participant reflections on their P-E-O transaction[63]



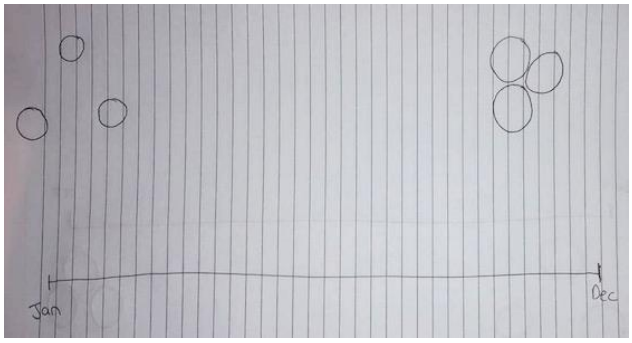
Above: *Illusionless optimist*'s reflection on her PEO transaction



Above: *Dedicatedly Winging-it* - reflection on her PEO transaction



Above: *Anx-cited Outsider's* reflection on her PEO transaction



Above: *Tired and trying* - reflection on her PEO transaction