

A realist evaluation of a training programme to enable experienced therapists to implement a complex rehabilitation intervention in a research setting.

Louise Howe

BSc. MSc.

School of Health Sciences

University of Nottingham

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Abstract

Background

Our ageing population is living longer; many people live with comorbid conditions that affect their function, health, and quality of life. This population requires complex rehabilitation interventions, and large-scale randomised controlled trials (RCTs) are the preferred method of evaluating their effectiveness. The therapists delivering these interventions need training and support to ensure they provide a high-quality intervention with fidelity to the manual. Little has been reported in trial papers around training, which varies in terms of the type of training and the detail of documentation. There have been a number of multi-site RCTs of complex rehabilitation interventions that did not demonstrate positive results. It has been suggested that inconsistent intervention delivery or a lack of training may have contributed to the results. This PhD evaluates the training programme designed to support therapists in delivering a rehabilitation intervention for the Promoting Activity, Independence and Stability in Early Dementia (PrAISED) RCT.

Methodology

Realist evaluation was chosen to identify how the training programme works in a research setting, to what extent, and why. Programme theories to explain the causal mechanisms at play within the training programme were identified, refined, and consolidated through three stages. Stage one was a scoping review of learning theories for training experienced therapists. Stage two was a mixed methods exploratory study utilising semi-structured interviews and observations of intervention sessions via video recordings. This stage aimed to understand the therapists' experiences and ascertain whether they delivered the intervention with fidelity. The final stage consisted of realist interviews with therapists to test and consolidate the programme theories generated in the first two stages. Stakeholders were consulted throughout the process to improve rigour and provide a broader perspective.

Findings

Overall, the PhD resulted in seven consolidated programme theories. These theories included three directly related to the nature of the training. The use of a multi-component training programme and flexible, consistent mentoring led to therapists developing a deeper knowledge of the intervention and expertise in delivering it to more complex cases. The use of case studies was considered effective in consolidating knowledge and applying theory to practice. Programme theories were also identified within the training programme's broader context pertinent to successful engagement with the training programme. A team culture with leadership, organisation structures and supportive peers facilitated opportunities to engage with

the training programme. Training alongside other team members leads to effective team building. Finally, developing relationships across the multiple sites enabled effective knowledge sharing, problem-solving and reassurance.

Conclusion

The realist evaluation enabled the training programme to be explored and understood in depth. It has contributed to the field an understanding of what training programmes should look like, how site teams can be organised to maximise intervention delivery with fidelity and how sites can work together to share and learn from each other. A list of recommendations for constructing training programmes for research settings has been developed for future complex intervention RCTs.

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Table of Abbreviations

AHP	Allied Health Professional
COTiD	Community Occupational Therapy for People with Dementia
COP	Community of Practice
CFIR	Consolidated Framework for Implementation Research
C	Context
CMOC	Context Mechanism Outcome Configuration
CINAHL	Cumulative Index to Nursing and Allied Health Literature
ERIC	Educational Resources Information Center
EBP	Evidence Based Practice
HCPC	Health and Care Professions Council
IPT	Initial Programme Theories
JBI	Joanna Briggs Institute
M	Mechanism
MRC	Medical Research Council
MoCA	Montreal Cognitive Assessment
NHS	National Health Service
OT	Occupational Therapy/Occupational Therapist
O	Outcome
PPI	Public and Patient Involvement
PT	Physiotherapy/Physiotherapist
PI	Principal Investigator
PrAISED	Promoting Activity Independence and Stability in Early Dementia
RCT	Randomised Controlled Trial
RSW	Rehabilitation Support Worker
REC	Research Ethics Council
SDT	Self Determination Theory
UK	United Kingdom
VALID	Valuing Active Life in Dementia

Chapter 1: Background

This PhD aims to explore how a training programme for an experienced Occupational therapist (OT), Physiotherapist (PT) and associated unqualified support staff enables the delivery of a complex rehabilitation intervention in a research setting, to what extent, and why. This thesis presents this research over six chapters: a background chapter ([Chapter 1](#)), which provides context and summarises existing knowledge; a methodology chapter ([Chapter 2](#)), which discusses the research philosophy and design; three further chapters which detail the identification, refinement and consolidation of programme theories to answer the research question ([Chapter 3](#), [Chapter 4](#) and [Chapter 5](#)) and finally a discussion of the overall PhD findings ([Chapter 6](#)). The identification, refinement and consolidation of programme theories will be conducted through a scoping review and then two primary research studies.

1.1 Chapter overview

This chapter introduces the PhD context and brings together existing literature, which will be utilised throughout the study to develop the research design and discuss research findings. It will begin by explaining the context of the research study, which is situated within a large NIHR funded multi -site randomised controlled trial (RCT). It will then explain the training and support programme that is being investigated for this PhD. The chapter will continue by presenting a range of literature which will consider how experienced therapists learn and implement new interventions including, training therapists in the research setting context, training of therapists practicing in rehabilitation settings, theories of implementation, behaviour change and learning. The chapter will finally consider clinical reasoning and therapist effect as potential explanations for how individual therapists utilise training resources differently.

1.2 Introduction

The NHS has a finite amount of funds, and these need to be spent prudently to ensure a quality service providing cost effective intervention and high patient benefit

(NHS England, 2017). The NHS long term plan highlights the need for evidence-based intervention throughout the document (NHS England, 2019). Alongside this our population of older adults is growing (Cracknell, 2010). More people are living with comorbid conditions that affect their function, quality of life and increase the need for complex healthcare (Ryan *et al.*, 2015), (Marengoni *et al.*, 2011), often delivered by allied health professionals (AHP). As a result, there is an increasing need to develop evidence-based, cost-effective interventions and test them through high quality research programmes. To meet this need the Medical Research Council (MRC) published guidelines for developing and evaluating complex interventions (Skivington *et al.*, 2021).

Complex interventions comprise of several interacting essential components that are all required for the intervention to be successful and change to occur (Skivington *et al.*, 2021). Identifying the 'active ingredient' within such an intervention can be challenging, making evaluation and implementation difficult (Van Stan *et al.*, 2019). The recommended method for evaluating complex interventions is through a multi-site RCT (Medical Research Council, 2000).

Researching complex interventions can be problematic. The intervention must be well defined, often by producing a protocol or manual (Medical Research Council, 2000) and a reporting checklist (Hoffmann *et al.*, 2014a). Complex interventions may vary in how they are delivered across the course of a trial as a result of multiple factors including differing settings for implementation, differences in therapists and what is learnt throughout the course of the trial (Voigt-Radloff, Graff, Leonhart, Hüll, *et al.*, 2011; Ellard *et al.*, 2014). To minimise these differences and ensure the essential components of the intervention remain intact, it is necessary to monitor what is delivered and assess to what degree the intervention is delivered as intended, with fidelity to the protocol (Voigt-Radloff, Graff, Leonhart, Hüll, *et al.*, 2011).

Many complex intervention trials use a form of training to facilitate the implementation of the intervention and ensure fidelity with the manual (Graff *et al.*, 2006; Voigt-Radloff, Graff, Leonhart, Hüll, *et al.*, 2011; Clare *et al.*, 2013; Ellard *et al.*, 2014; Brown *et al.*, 2015; Gitlin *et al.*, 2016; Wenborn *et al.*, 2021). This varies

significantly across studies. For most an initial training session is provided, before delivering the intervention. These may vary in length. Some studies required a period of learning on the job (Graff *et al.*, 2006; Voigt-Radloff, Graff, Leonhart, Hüll, *et al.*, 2011), others utilised refresher training days (Clare *et al.*, 2013) or ongoing support (Voigt-Radloff, Graff, Leonhart, Hüll, *et al.*, 2011; Clare *et al.*, 2013; Brown *et al.*, 2015; Gitlin *et al.*, 2016; Wenborn *et al.*, 2021). There is no guidance within the MRC framework around what training methods should be used although it has been recognised that this should be reported on (O’Cathain *et al.*, 2019).

Several multi-site RCTs of rehabilitation have resulted in neutral results, after a positive impact in the feasibility or pilot stage (Parker *et al.*, 2001; Ellard *et al.*, 2014; Logan *et al.*, 2014; Sackley *et al.*, 2015). One consideration proposed by the leaders of these studies is that the intervention has been diluted or not implemented as recommended. Multiple factors may have influenced this, including that therapists from different sites, with diverse experience levels, provide a different quality of service (Parker *et al.*, 2001; Ellard *et al.*, 2014; Logan *et al.*, 2014; Sackley *et al.*, 2015) or provide significant variations in the number of therapy sessions per participant (Logan *et al.*, 2014). Cultural differences, similarity to the control intervention and differences in training and experience delivering the trial intervention (Ellard *et al.*, 2014) have also been suggested.

Within the literature for complex intervention trials for AHPs, there is under-reporting of the training packages used for the staff delivering the interventions. What is reported is inconsistent, in terms of what is included in the report and what is carried out (Parker *et al.*, 2001; Graff *et al.*, 2006; Voigt-Radloff *et al.*, 2009; Voigt-Radloff, Graff, Leonhart, Schornstein, *et al.*, 2011; Clare *et al.*, 2013; Logan *et al.*, 2014; Holmes *et al.*, 2016). This is problematic as it prevents learning from the experiences of other trials and reduces the opportunity to develop a consistent method or guidance for training delivery staff in RCTs. It is highly likely that the training received by the therapists delivering an intervention will influence what is delivered to study participants and therefore is an important part of the RCT process.

1.3 Study setting

1.3.1 Dementia and falls

A Dementia UK report identified that the number of people living with dementia receiving care in the UK in 2015 was 651 000 and this number is set to more than double by the year 2040 (Wittenberg *et al.*, 2020). Dementia is a neurodegenerative condition, characterised by a gradual decline in cognitive function and ability to carry out everyday tasks. Physical symptoms are also evident including changes to gait and problems with balance resulting in people with dementia being at an increased risk of falls (Delbaere *et al.*, 2012). Current falls management practices have not been designed to address the cognitive difficulties associated with dementia, thereby decreasing their effectiveness (Booth *et al.*, 2018). Falls for people with dementia can have a significant impact on their levels of independence and healthcare needs, with associated increases in health and social care costs (Tian, Thompson and Buck, 2014).

1.3.2 The PrAISED RCT

This PhD study sits alongside a large NIHR funded, multisite RCT exploring the effectiveness of an intensive rehabilitation programme for people with mild dementia; **Promoting Activity, Independence and Stability in Early Dementia (PrAISED)**(Harwood *et al.*, 2023a). The PrAISED intervention was developed combining functional activity, exercise and motivational strategies to promote independence and falls prevention in a structure that meets the needs of this client group (Booth *et al.*, 2018). Throughout the PhD this will be referred to as the intervention.

A feasibility study was carried out that evaluated two versions of the PrAISED intervention alongside standard falls advice; an intensive, 12 month programme, and a 3 month period of supervision (following which the participants were to continue independently). This identified that there were some benefits for participants in the intensive group and that this would require further study (Harwood *et al.*, 2018). A training manual was developed (Logan *et al.*, 2022a) and a larger trial started in October 2018 (Bajwa *et al.*, 2019). In this multi-centre study, therapy teams are delivering the intervention, consisting of OTs, PTs and rehabilitation support workers

(RSW) (unqualified support staff) with experience of working alongside therapists for people with dementia. The study was delivered across five sites (Nottingham, Derby, Lincoln, Bath and Oxford). The timeline for the study is presented in [Figure 1](#).



Figure 1: PrAISED RCT Timeline September 2018 to June 2022

1.3.3 The PrAISED Intervention

The PrAISED intervention was designed through a process of evidence synthesis, consultation with professionals and patient and public involvement (PPI) (Booth et al., 2018). The intervention was designed for people who were newly diagnosed and experiencing mild cognitive impairment (Harwood et al., 2023). The intervention would be delivered by teams of OTs, PTs and RSWs working with participants in their own homes over the course of 12 months (Harwood *et al.*, 2023b). The intervention was described in a manual ((Logan *et al.*, 2022b), it aimed to combine functional activity and physical exercise, motivational techniques and maintenance strategies to with a view to improve or maintain the participants physical and cognitive performance ([Figure 2](#)).

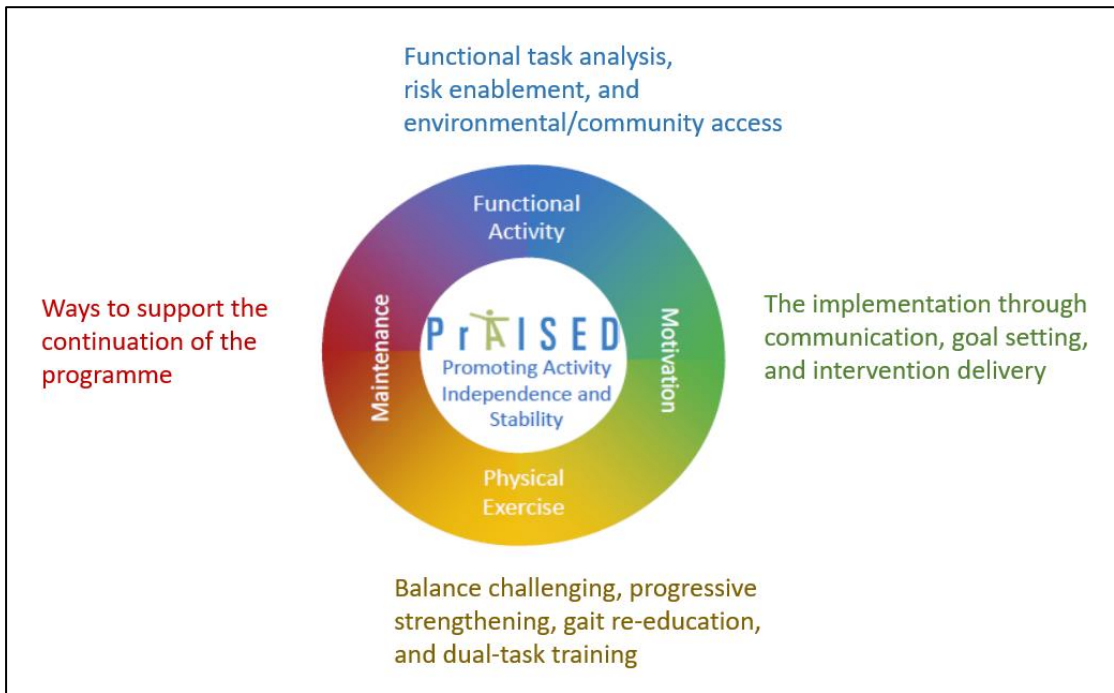


Figure 2: The PrAISED Intervention (Logan et al., 2022b)

Practically the intervention begins with the OT and PT working together to conduct a person-centred assessment and identify goals for the intervention that were based on increasing the participants engagement in physical activity over the course of their year long intervention (Logan et al., 2022b). The RSW support would aim to work with the participants to meet these goals. The intervention followed 14 core principles as set out in [Box 1](#). The intervention would begin by being delivered bi-weekly and the frequency would reduce throughout the 12 months. The intervention was regularly reviewed and altered as necessary by the registered therapist. Over the course of the 12 months the registered therapists could deliver up to 11 sessions between them and the RSWs up to 39 sessions to each participant. The intervention sessions were between 60 – 90 minutes long (Di Lorito et al., 2023a).

1. Intensive (150 minutes of physical activity per week)
2. Focused on tailored physical activity
3. The task must be challenging
4. The tasks must be progressive
5. The tasks must promote or improve independence
6. Supporting activities of daily living
7. Supporting dual tasking
8. Accessing the environment
9. Embracing positive risk taking
10. Using motivational theories
11. Assisting in habit formation
12. Using tapering to promote self-management
13. Promoting long term engagement
14. Participant specific goal setting

Box 1: PrAISED Core Principles

1.3.4 The training programme

The programme being evaluated in this PhD is the multi-component package of training and mentoring for the experienced staff delivering the PrAISED intervention. For the purpose of this PhD, the term therapist will be used to mean either OT, PT or RSW, unless otherwise specified and the term training programme will be used to mean the package of training and mentoring.

The aim of the training programme is to ensure the therapists deliver the intervention to a high level of fidelity as described in the manual. Fidelity is the extent to which an intervention is delivered as intended (Borrelli, 2011). The manual details the core components of the intervention and strategies to deliver them. The therapists are likely to encounter a range of participants and tailor the strategies to meet their needs. The therapists' intervention will be evaluated against these components and strategies.

The training programme involved multiple constituent parts, the study protocol identified six days of training for qualified therapists (OTs and PTs) and five days for RSWs. This was been divided into:

- a) A 15 hour initial training event based on the 14 core components.
- b) Mentoring through on site mentoring following the start of recruitment
- c) Monthly group remote mentoring,

d) Refresher training day

The initial training was delivered to sites A, B and C as a large group, this was repeated for sites D and E separately, however, due to changes in staff, and fluctuations in the amount of staff required, the initial training was repeated for individuals or small groups on a monthly basis from September 2018 to March 2020. After this point, as the recruitment peak had completed, this changed to ad-hoc sessions and another four initial training sessions were delivered between March 2020 and June 2022 ([Figure 3](#)).

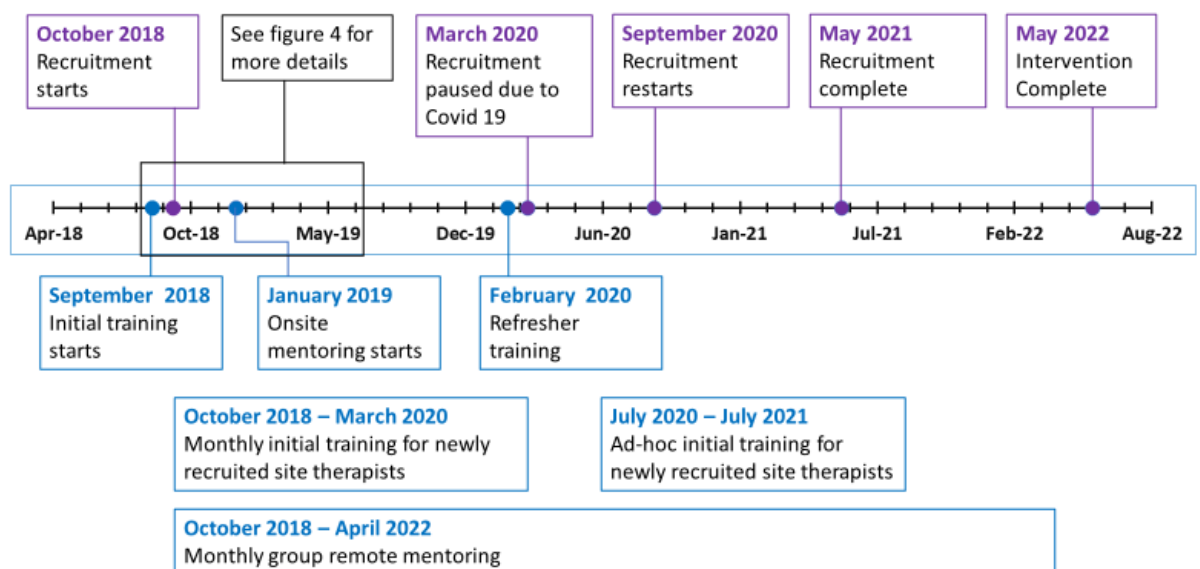


Figure 3: The training Programme timeline from September 2018 to June 2022

Following the initial the start of recruitment at each site, on site mentoring sessions were delivered for the site, to provide support with initial challenges and ensure the intervention was being delivered as intended ([Figure 4](#)). Monthly group remote mentoring was delivered from October 2018 to May 2022. This was delivered for all sites to attend and discuss any challenges or successes and share their experiences. Finally a refresher training day was delivered face to face for all sites, to explore the use of the intervention for more complex cases and promote learning from experience across all sites.

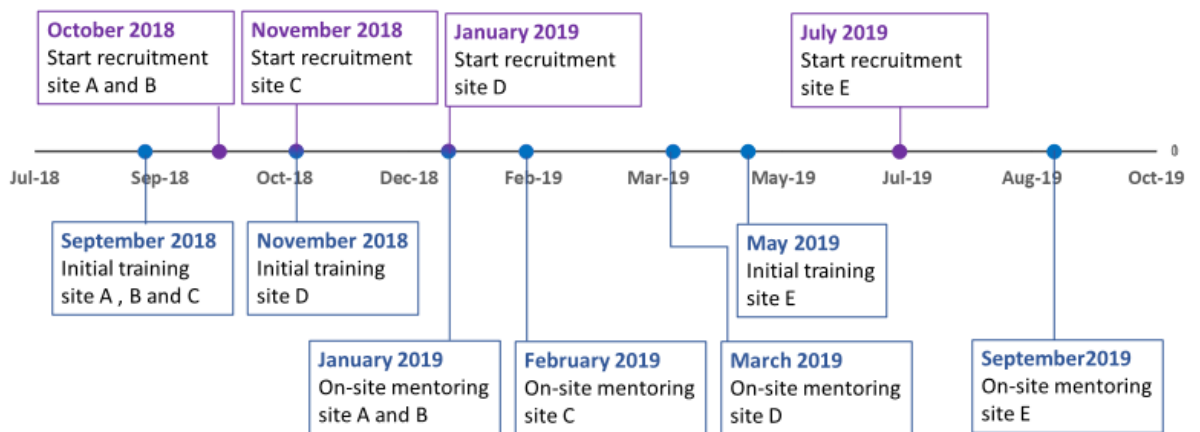


Figure 4: Timeline to demonstrate the initial training, recruitment and onsite mentoring between September 2018 to April 2019

1.3.5 Recruitment of therapists to the PrAISED trial

Recruitment of therapists to the PrAISED trial was complex. Initially therapists were trained in large groups for each site, however there was a need for further monthly training sessions to train individual or small groups of therapists. This was due to attrition of therapists, availability of the therapists and a steady increase of PrAISED participants up to March 2020. Figure 5 demonstrates the numbers of therapists being trained. There were 63 therapists trained in total over the duration of the trial but due to attrition the most therapists at any one time was 36 at the peak of the trial (March 2020).

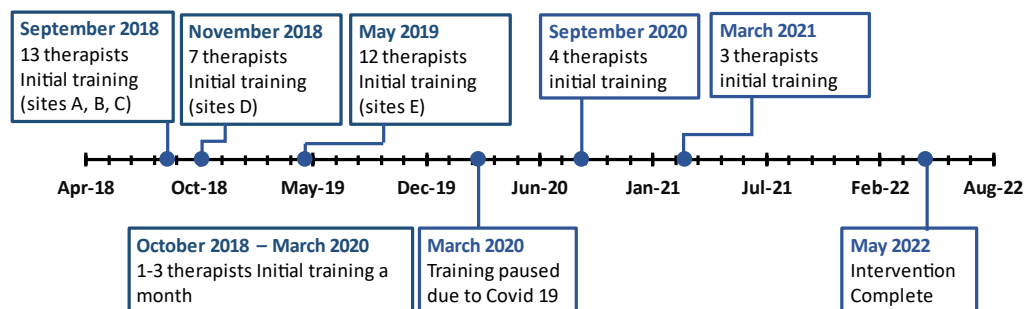


Figure 5: Timeline to demonstrate the numbers of therapists attending the PrAISED initial training workshops

1.4 Structure of the thesis

In order to evaluate the training programme this PhD thesis has been structured in the form of three iterative studies presented across 6 chapters (Figure 6).

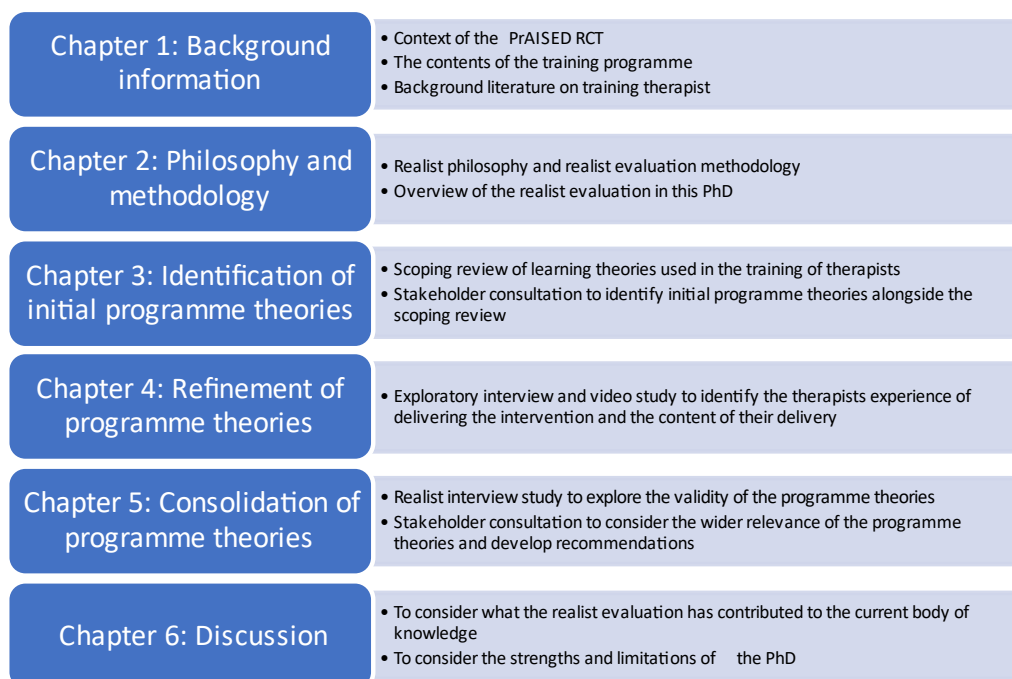


Figure 6: Structure of the thesis

The next part of this chapter is to explore what existing literature contributes to the development and evaluation of a training programme of this nature.

1.5 Background literature review

The aim of this review is to consider literature relevant to the development and evaluation of the therapist training programme. This is a narrative review; firstly, literature relating to RCTS of complex rehabilitation interventions delivered by AHPs will be considered, including what training is provided and the implications on the study results. Secondly the review will discuss recent practice in implementation of evidence-based practice (EBP) and the implications for therapist training. Theories of learning for healthcare practitioners will be reviewed and how these are relevant for the training programme will be discussed. Finally, clinical reasoning and therapist effect will also be considered and how these concepts might influence the delivery of an intervention.

1.5.1 Training therapists for research interventions

Within the literature for complex intervention research, there is mixed reporting on the training provided for the therapists delivering the interventions. This ranges from no information reported (Parker *et al.*, 2001) to descriptions of the amount and brief content of training and ongoing support (Voigt-Radloff, Graff, Leonhart, Schornstein, *et al.*, 2011; Clare *et al.*, 2013). Below is a review of what has been found.

In some trials it was stated that no training has been provided at all (Clarke *et al.*, 2016; Wu *et al.*, 2017). Wu *et al.* (2017) conducted a trial into early inpatient rehabilitation for adults following road traffic accidents. Rather than setting a standardised intervention they investigated teams across four sites in Australia which were already active. They did not find any improvement in the intervention group and noted that inconsistencies across the sites may have contributed to the poor outcomes. Clarke *et al.* (2016) conducted a trial into rehabilitation for participants with newly diagnosed Parkinson's Disease. Similarly, to the previous study, the 38 sites across the UK did not carry out a specific intervention, instead providing PT and OT at the discretion of the therapists. They too found no improvement between intervention and control groups and identified problems in the variations of the intervention that was delivered. Although there may have been multiple reasons for the outcomes of these studies, due to a lack of definition and consistency in the treatment provided, it is difficult to learn more from the findings.

Differences with training may have contributed to conflicting results from two studies investigating the same intervention, the Dutch Community Occupational Therapy for People with Dementia (COTiD) trial (Graff *et al.*, 2006) and the German WHEDA study (Voigt-Radloff *et al.*, 2009). In the COTiD study, a single site RCT, two experienced OTs implemented a community rehabilitation intervention to people living with dementia and their carers. The OTs completed 80 hours of training and 240 hours of experience prior to carrying out the intervention for the trial (Graff *et al.*, 2006). The intervention group were found to have made significant improvement compared to the control group.

The WHEDA study, implemented the COTiD intervention across 7 sites in Germany, however, they did not repeat the successful results (Voigt-Radloff *et al.*, 2009). It was suggested that there may be issues transferring services from one country to another due to the differing populations and health and social care systems. However, Voigt-Radloff *et al.* (2011) did identify other factors which may have impacted on their findings including the intervention may have been too similar to the control intervention, the German therapists were less experienced, they received less training and saw fewer participants per person. The fidelity of the intervention was completed via therapist self-report, rather than a more objective measure which made it difficult to determine if the German OTs delivered the same intervention as the Dutch OTs.

Varying results between single site and multi-site RCTs have been problematic in other settings (Parker *et al.*, 2001; Logan *et al.*, 2014). For example, Logan *et al.* (2014) conducted a multi-site RCT of a community OT intervention aimed at accessing the community post stroke. Although this had been successful during a one site pilot study (Logan, Walker and Gladman, 2006), the multi-site trial produced neutral results which may have resulted from variations in the service provided (Logan *et al.*, 2014). Parker *et al.* (2001) conducted a multi-site RCT based on an OT leisure intervention for people recovering from a stroke, based on a successful one site trial (Drummond and Walker, 1995). Similarly to Logan *et al.* (2014), the positive results were not repeated, and variations across the sites considered as a possible explanation (Parker *et al.*, 2001). These variations may be reduced by utilising approaches to maximise fidelity (Borrelli, 2011).

When conducting multi-site RCTs on complex interventions, what is delivered should be concordant with descriptions in the study protocols. This is called fidelity (Carroll *et al.*, 2007). The more the intervention varies at different sites and when delivered by different therapists, the more difficult it is to ascertain what is effective and make recommendations based on the results (Walton, Spector, *et al.*, 2019). This is particularly difficult to determine when an intervention is tailored to the individual participants (Medical Research Council, 2000). Borrelli (2011) developed a five-domain model of treatment fidelity, one of these domains is that of training. Borrelli (2011) advocates for the use of a standardised training plan which includes

characteristics of those providing the intervention, training in delivery and maintenance of skills over time. There is also importance given to assessing competence following the training, utilising role-play of typical patients, booster sessions and ongoing supervision (Borrelli, 2011). Fidelity has been explored further to identify how fidelity can be maximised by considering factors at the design, resource and implementation stages of delivering an intervention in a research setting (Poltawski, Norris and Dean, 2014).

Examples of such an approach would be Holmes et al. (2016) and Robbins-Welty et al (2018). Both sets of trialists described the process of considering fidelity when developing their training programmes. Holmes et al (2016) developed a programme of training, including refresher training, and mentoring for participants delivering an intervention for a vocational rehabilitation study for participants with a traumatic brain injury. Interviews were used to evaluate the training programme, which identified that the therapists valued both the training and mentoring, and this helped them build confidence with the intervention over time. The interviews also highlighted the therapists' trepidation at becoming involved in research settings which will be considered further below. Robbin-Welty et al. (2018) considered fidelity in the CONNECT study, which was a nurse led primary palliative care in an oncology trial. They considered a process of training, monitoring and maintenance to prevent the intervention from drifting away from the intended protocol including a three day training course, frequent supervision via telephone and monthly site visits (Robbins-Welty *et al.*, 2018). Although successful this was time intensive for the staff training and supporting the nurses involved.

The Valuing Active Life in Dementia (VALID) study (Wenborn *et al.*, 2016) is a UK trial of the COTiD intervention described above. To improve their fidelity to the intervention they identified a package of training and supervision. This study utilised Borelli's model to develop a range of fidelity measures including self-report tools and a checklist to evaluate audio recordings of therapy sessions (Walton, Tombor, *et al.*, 2019). Following this, feedback was provided to enhance the therapists' skills and increase fidelity further.

As identified by Holmes et al. (2016) therapists can be anxious about the research processes involved within a clinical trial. This was also explored through interviews with therapists on the VALID study (Di Bona *et al.*, 2017a). Some of the therapists were put off by the research processes involved, particularly those that involved them being video recorded or increased paperwork (Di Bona *et al.*, 2017a). There was also concern over delivering a new intervention and having their work scrutinised. Support from peers and managers and having protected time for the research work were enabling factors for the therapists (Di Bona *et al.*, 2017a). Luker et al. (2016) identified enablers and barriers to implementing early mobilisation after stroke for a multisite RCT. Enablers included education, developing different ways of working and strong leadership, whilst barriers resulted from poor teamwork, inadequate staffing or difficulties with staff mind-set, and organisational barriers (Luker *et al.*, 2016).

Despite Borelli's (2011) recommendations around training provision in the research of complex interventions, and that of O'Cathain et al (2019) that training should be documented, the evidence above within rehabilitation trials is that this remains inconsistent. The above does not identify what might be needed from the contexts within which the training is provided, or the therapists are working, or how these elements facilitate learning for different therapists. This represents a gap in research trial methodology literature that this PhD aims to contribute towards filling.

These findings support the need for quality training packages that enable therapists to understand the core aims of an intervention, underlying theory of how an intervention works, explore new ways of working and implement interventions as designed. The next section of this literature review will consider how EBP is implemented.

1.5.2 Implementation of evidence-based practice

It is useful to consider how EBP is implemented into healthcare settings because many of the same influences will affect how the therapists deliver the interventions for research trials.

Implementation science is a relatively new concept (Bauer *et al.*, 2015). It is increasingly recognised as relevant to researchers and research funding is often dependent on the ability to demonstrate how new interventions will be put into practice (Bauer *et al.*, 2015). As with emerging fields of study there can be conflicting views on language and concept used (Damschroder *et al.*, 2009). Wensing and Grol (2019) identify that knowledge translation described the use of integrating research evidence into practice, and implementation science explores scientifically how this would be done (Wensing and Grol, 2019). The aim of implementation science is to facilitate EBP into healthcare settings and reduce the length of time between research findings being identified and interventions becoming established in everyday healthcare practice (Bauer *et al.*, 2015). Implementation trials either seek to establish enablers or barriers to implementing EBP or research the use of implementation strategies for particular interventions (Damschroder *et al.*, 2009).

A number of models and theories have been developed to explain implementation science and there was little consistency between the language used in each one (Damschroder *et al.*, 2009). Damschroder (2009) identified that none of these theories or models encompassed all aspects of implementation science and developed one framework to combine all the theories and facilitate consistency within the field. This resulted in the Consolidated Framework for Implementation Research (CFIR) (Damschroder *et al.*, 2009). The CFIR is made up of five domains that can be broken down into further components. The five domains are the intervention, the outer setting (economic, political and social context), the inner setting (the local organisational context), the individual and the process of implementation (Damschroder *et al.*, 2009). These concepts can be seen as the macro, meso and micro contexts; The macro being the national and international picture including political stability, legislation, policy and guidelines, the meso level organisational contexts and the micro level the individual patients involved (Nilsen and Birken, 2020). A strength of the CFIR is that it is a system wide framework that considers all levels of implementation; however, it does not consider any causal mechanisms that contribute to implementation. Nilson (2015) advocates the use of theories and frameworks as they are based on facts, rather than assumptions and help develop the implementation science knowledge base (Nilsen, 2015).

Pellerin (2019) utilised the framework when conducting a systematic review into the knowledge implementation strategies utilised in OT. Key determinants included the organisation, in particular leadership, the adaptability of interventions and local resources. The individual's readiness for change and beliefs about the interventions were also important (Pellerin *et al.*, 2019a). When considering the studies discussed in the first section of this review many mentioned the training or process for implementing the interventions. The studies by Di Bona *et al.* (2017), Luker *et al.* (2016) and Holmes *et al.* (2016) also considered the individual delivering the intervention and the settings within which they were delivered. This may be a useful framework for considering how interventions are delivered in research settings.

Knowledge translation looks at the process of embedding research knowledge into practice (Graham *et al.*, 2006). Graham *et al.* (2006) suggests the Knowledge to Action Process which takes the form of a cycle. It begins identifying an area for change and establishing the evidence base for possible solutions. The next step is identifying barriers and contextualising the information, before putting it into practice and evaluating its use.

Menon *et al.* (2009) conducted a systematic review of knowledge translation studies with rehabilitation therapists. Interactive multi-faceted interventions, such as interactive teaching, group discussions and follow-up support, were more effective at promoting EBP than single passive interventions, such as dissemination of findings (Menon *et al.*, 2009a). Similar results were found by Pellerin *et al.* (2019) who conducted a systematic review of knowledge translation practices within OT literature. Most of the 22 articles reviewed utilised multi-component interventions, the most common were educational meetings and others included educational materials, outreach visits, monitoring performance, audit and tailoring to the local context. The use of multi-methods is also supported by Scott *et al.* (2012) who carried out a systematic review into knowledge translation interventions for allied health professionals. The best outcomes resulted from using more than educational strategies, such as formal teaching session, to integrate EBP into practice, for example organisational support (commitment and change at multiple levels within the organisation) (Scott *et al.*, 2012).

Scott et al. (2012) identified that there was a lack in consistency in the reporting of knowledge translation activities, similar to that found within the reports of training within research settings above. The use of WIDER recommendations which advocate for a standard method and quality of reporting behaviour change interventions was recognised a possible solution (Michie *et al.*, 2009).

Behaviour change interventions may also be relevant when considering implementation of rehabilitation interventions and new ways of working. Such interventions have been utilised within healthcare settings to inform the behaviour change of patients and staff with large numbers of interventions being reported (Michie *et al.*, 2009; Davis *et al.*, 2015). One behaviour change model which has been used in the development of training for the healthcare professional is the COM B model of behaviour change which utilises the behaviour change wheel to identify behaviour change strategies (Ross *et al.*, 2015; Bull *et al.*, 2019; Dyson and Cowdell, 2021). The COM B states behaviour change comes from the interplay of three domains; capacity, opportunity and motivation, whilst the behaviour change wheel identifies interventions and policy strategies that can assist in behaviour change across the three domains (Michie, Maartje M. van Stralen and West, 2011)

There are some differences in the implementation of an intervention into an existing service, as is often the case with implementation strategies and delivering a high fidelity research intervention as part of a trial. For example, the context of intervention delivery is likely to be different, the intervention may not be delivered within an established and functional therapy team and there may be varying levels of engagement and support from therapy leadership, and other organisational stakeholders. Another challenge would be the need to practice the research intervention in isolation from other therapy techniques. Often therapists deliver a range of interventions available to them to meet the needs of individual patients, however within the research setting, there is a need to practice the intervention more rigidly and often in isolation with other therapy techniques to prevent contamination of the research intervention.

To support the therapists on the PrAISED trial in implementing the evidence-based intervention that was developed, the use of multiple implementation interventions

were required as formulated through the training programme. The next section of this review looks at theories of learning that may be utilised within healthcare training.

1.5.3 Theories of learning used to train therapists

Education strategies (such as the use of formal teaching sessions or manuals), were the most widely used strategies for facilitating the uptake of new interventions, especially when combined with additional interventions, such as organisational support (i.e. engagement of leadership and stakeholders) (Menon *et al.*, 2009a; Scott *et al.*, 2012; Pellerin *et al.*, 2019b). This section of the review aims to consider the different learning theories that are practised in health care and that informed the development of the training programme: action learning, experiential learning and adult learning.

Action learning is increasingly used in healthcare settings (Stark, 2006; Machin and Pearson, 2014; James and Stacey-Emile, 2019). Active learning occurs when a group of participants are facilitated to problem solve real life problems, through reflecting on the situation, making challenges and suggestions, and developing solutions (James and Stacey-Emile, 2019). It can be particularly helpful in situations where there are multiple solutions rather than one, clear cut answer (Stark, 2006). It is often carried out as part of an ongoing process of reflection and development, where action learning sets (groups of learners) meet regularly over a period of time (Stark, 2006; Machin and Pearson, 2014).

Three studies are given as examples, to demonstrate action learning use within healthcare settings from newly qualified staff (Machin and Pearson, 2014), to consultant practitioners (Young *et al.*, 2010). Machin and Pearson (2014) conducted a realist evaluation of action learning sets for recently registered nurses and midwives. Action learning was a positive experience for the participants, and they felt supported by their peers (Machin and Pearson, 2014). The study emphasised the need for good facilitation to prevent sessions becoming negative, and to ensure a focus on solutions (Machin and Pearson, 2014). Stark (2006) utilised action learning sets for three groups of nurses and educators and found that the level of learning

was proportionate to how well the participants engaged within the groups. Similarly to Machin and Pearson (2014), Stark (2006) identified that action learning provided a supportive and empowering environment that fostered collaborative working. Difficulties were complacency, fear of criticism and factors resulting from historical relationships between group members (Stark, 2006).

Finally, Young et al. (2010), described the process of action learning sets used by newly appointed consultant nurse practitioners developing strategic skills. Through the process, the group established their roles, which were new to the organisation. Although this was an informal evaluation of the process, they were able to demonstrate benefits to both patients and the teams they worked in, whilst providing themselves with peer support (Young *et al.*, 2010).

Another learning theory that builds on the concept of reflection is experiential learning (Kolb and Kolb, 2005). It presents a cyclical model of learning, based on experiment and experience, reflection, theorising and practically applying new concepts. Learners may begin at any point in the cycle although it is often carried out as a process (Ruckert, Plack and Maring, 2014). By utilising the four steps in this theory, training developed using this model will appeal to a range of learners and their different learning styles (Kolb and Kolb, 2005). Experiential learning is a common theory used within undergraduate learning for health care professionals (Green and Holloway, 1997; Knecht-Sabres, 2013; Smith and Crocker, 2017).

Experiential learning can include supervised practice in safe settings (Knecht-Sabres, 2013), role play (Green and Holloway, 1997) and simulations (Smith and Crocker, 2017). Green and Holloway (1997) explored student nurse's views of experiential learning. Role play and reflection were seen as core components of experiential learning and these strategies were beneficial to their learning (Green and Holloway, 1997). The learners did however feel that role play in particular, required good facilitation from course leaders and commitment from those taking part in order to be successful. A study looking at OT student's use of experiential learning in a supervised practice setting, found it enabled them to make links between theory and practice as well as developing practical and professional skills (Knecht-Sabres, 2013). Experiential learning has been utilised within physiotherapy training in multiple ways

and can be particularly useful in situations where there are fewer opportunities to learn from direct client practice (Smith and Crocker, 2017). In the development of a training course to improve healthcare professionals communication skills with people with dementia, experiential learning was utilised to learn in action through simulated cases (O'Brien *et al.*, 2018; Pilnick *et al.*, 2018).

A model has been proposed that looks at facilitators and barriers to experiential learning within nursing education (Fowler, 2008). Facilitators included the relevance of the experience in question, the engagement of the learner and their methods of reflection. A lack of commitment or competing priorities from either party would present as barriers to the process (Fowler, 2008).

The PrAISED training programme made use of experiential learning to consider case studies and used role play techniques, to relate theory into practice. The facilitators needed to ensure therapists were motivated and engaged in the training to reduce barriers to the experiential process. This may be done through strategies designed for adult learning.

Adult learning, or andragogy is the combination of the science and art of how adults learn (Chan, 2010). It is built on the assumptions that adult learners bring life experience to learning and are intrinsically motivated; they learn best when they have some control over the learning process, when the topics are pertinent to their current situation and they understand why they need to learn about them (Ruckert, Plack and Maring, 2014). These concepts were translated into the development of the training programme through utilisation of the therapists' experience, in group discussions and making the objectives of the training explicit. Although it is recommended that the initial training of an intervention delivered in a research setting should remain consistent in order to promote fidelity (Walton, Spector, *et al.*, 2019), it may be possible to offer the therapists choices in relation to the mentoring and subsequent components of the training package, to ensure the ongoing training meets the therapists' learning needs. Implementing strategies based on adult learning concepts can promote critical reflection, engagement, enthusiasm and other effective learning behaviours (Higgs and Terry, 1993).

The theories presented above work congruently as they are aligned with similar principles of learning through experience and reflective practice. Although much of the literature focuses on evaluating one particular theory, the effects of a combination of theories has been studied with physiotherapy students by Ruckert et al. (2014). Using a combination of learning theories to develop a course was found to engage learners, encourage reflective practice and be an effective method of implementing new practices (Ruckert, Plack and Maring, 2014).

Methods of learning and implementation of therapies are not the only influence on the delivery of an intervention. Below the impact of clinical reasoning and therapist effect are considered.

1.5.4 Clinical reasoning in OT and PT

Clinical reasoning is the process through which clinicians assimilate their professional philosophy, theories and knowledge of practice and use it to make judgements and decisions when assessing and treating clients (Unsworth and Baker, 2016). The use of reasoning skills for therapists includes developing case formulations about the nature of the client, identifying treatment programmes and tailoring each client interaction to meet their individual and evolving needs.

In OT, the concept was first discussed by Rogers (1983) who identified that a combination of processes were occurring including utilisation of knowledge, skills and experience, inductive and deductive reasoning and ethical decision making (Rogers, 1983). Rogers (1983) described clinical reasoning as a combination of science, art and ethics. This concept has since been explored in detail. Unsworth and Baker (20156) completed a systematic review of the literature, finding that although much has been written, there was a lack of quality studies addressing the concept. The following areas of reasoning were highlighted; narrative, procedural, interactive, pragmatic and conditional, and a model to teach undergraduates the process of clinical reasoning was developed (Unsworth and Baker, 2016).

In PT, there was a similar timeline regarding investigation of clinical reasoning skills (Elvén and Dean, 2017). Payton (1985) carried out a descriptive study on PT's problem-solving skills and identified the need for the topic to be explored further

(Payton, 1985). Following this, Jones (Jones, 1995) explored clinical reasoning for PTs treating pain and identified that biomedical and clinical knowledge alongside reflection and lateral thinking contributed to clinical reasoning. The importance of involving the patient in decision making was also emphasised (Jones, 1995). Both authors drew from the knowledge of other professions which has been a theme throughout clinical reasoning literature for AHPs (Elvén *et al.*, 2015; Huhn *et al.*, 2019).

Two more recent models of clinical reasoning have been developed by Huhn *et al.* (2019) and Elven *et al.* (2015). Both models were developed with a physiotherapy focus, and draw on literature from a range of professional groups. They both describe a process between the client and therapists, that is iterative and adaptive, considers the therapist's knowledge and professional experience, and the therapist's abilities and perspectives. Elven *et al.*'s model has an emphasis on behaviour change for the patient and goes into greater detail into client input and behaviour change strategies (Elvén *et al.*, 2015).

There is also distinction in the literature between the reasoning of expert clinicians as opposed to the novice practitioner (Unsworth, 2001), though the sample sizes under investigation were relatively small. For the expert clinician, reasoning skills are quick and automatic (Unsworth and Baker, 2016), and there is more consideration and adaptation of their approach within a clinical interaction (Wainwright *et al.*, 2010). This was also found by Unsworth who identified experts are better able to tailor interventions according to the needs of the client (Unsworth and Baker, 2016).

Only one article was found on the use of clinical reasoning by unqualified therapists and only one OT assistant took part in the study by Lyons and Crepeau (2001). They found that the assistant employed similar types of reasoning as qualified therapists, however, they had not investigated whether any new types of reasoning had been utilised and the generalisability of these findings is limited by the small sample size (Lyons and Crepeau, 2001).

For therapists to use the knowledge they are taught, they have to process it through their clinical reasoning skills, combining it with previous professional knowledge and experience and adapting it to the unique needs of each client. This is an important

step in the delivery of a new intervention and can be simulated during training through case studies and roleplay. For the PrAISED RCT, experienced clinicians were employed who were likely to have more advanced reasoning skills. However, the unique nature of each therapist's professional careers and personal characteristics will have influenced their implementation of the intervention and may have contributed to variations in what is delivered.

1.5.5 Therapist effect

Therapist effect refers to the impact different personal characteristics of each therapist has on the delivery of an intervention. This concept overlaps with the idea of the individual within implementation science frameworks (Damschroder *et al.*, 2009). This has been researched within the fields of psychotherapy and psychology for some time; for example, Crits-Christoph *et al.* (1991) carried out a meta-analysis of therapist effect in psychotherapy outcomes studies, finding there was a difference between more experienced and less experienced therapist outcomes (Crits-Christoph *et al.*, 1991). A more recent systematic review (Lingiardi *et al.*, 2018), identified that therapists' interpersonal skills were the main effect on client outcomes, however there was also some evidence that the therapists' personal histories and sense of self may also influence the client-therapist relationship.

Therapist effect has begun to be explored in PT research. Buining *et al.* (2015) explored the impact personal characteristics of PTs working with chronic illness had on outpatient settings in the Netherlands. PTs who were calmer, more relaxed, secure, resilient had better patient outcomes (Buining *et al.*, 2015). Another Dutch study (Kooijman *et al.*, 2019) identified that PTs who were more outgoing and energetic had a positive effect on the outcomes of patients with shoulder pain in primary care.

Within the PrAISED trial the therapists were supporting participants to change their behaviour and become more active. The PrAISED intervention used Self-Determination Theory (SDT) to promote this behaviour change (Booth *et al.*, 2018). One of the key concepts of SDT is that humans have a basic need to feel relatedness, connected to those around them (Deci and Ryan, 2008). Therefore, a good

relationship between the therapist and the participant could result in a sense of relatedness and promote behaviour change for the participant. This was also identified in a scoping review in which nine behaviour change theories were reviewed (Di Lorito *et al.*, 2019); it was found that support, including development of a therapeutic alliance was present in seven of the theories. It is therefore highly likely that the therapists' interaction style and personal characteristics may affect how the intervention is received by the participants.

1.5.6 Evaluation of training programmes

There are many examples of training and education that has been used within healthcare settings to train therapists. Much of this is focused on training pre-registration or newly qualified therapists and therefore not included here. However, how the training is evaluated was considered. The main model utilised in evaluating healthcare training is the Kirkpatrick model (Müller *et al.*, 2019)

The Kirkpatrick model is a four level approach utilised in healthcare settings (Smidt *et al.*, 2009; Légaré *et al.*, 2015; Heydari *et al.*, 2019), including an evaluation of education and training for patient safety carried out by Health Education England and the Imperial College London (Yu, Fontana and Darzi, 2016). The four steps are to understand the learners reaction to the training, to measure what was learned, to identify whether there has been a change in behaviour and then to evaluate the results of the training and behaviour change (Kirkpatrick and Kirkpatrick, 2006). The model which has its roots in business training, has been popular due to its simplicity in investigating complex processes however it has been criticised for not considering context or causal linkage in its resulting explanations (Bates, 2004).

Due to the limitations discussed by Bates (2004), it was identified that a more explanatory based method of evaluation would be required for this study and the realist evaluation approach was selected and will be explored further in [Chapter 2](#).

1.6 Chapter summary

This literature review has highlighted that there is a need for quality training in the delivery of complex interventions that are being investigated as part of multi-site RCTs. There is a need to draw on both implementation science and learning theories to design training that meets the needs of the learners and facilitates the learning of complex clinical approaches. Finally, the review considered other factors that may influence the delivery of an intervention, such as the therapists' clinical reasoning skills and therapist effect. The next step of this PhD is to consider the philosophy and methodology that is going to be used to conduct the realist evaluation of the training programme.

Chapter 2: Philosophy and methodology

2.1 Chapter overview

The previous chapter ([Chapter 1](#)) outlined background information relevant to this PhD study identifying that little is known about how experienced therapists learn to deliver interventions for research studies and why this is important. This chapter will explore the use of realist evaluation as a research approach and provide an overview of the methodology used for this PhD. It will begin by establishing the epistemological position of the study, justifying the grounds for knowledge through reviewing the evolution of critical realism and scientific realism, as the research paradigms from which Pawson and Tilley's (2014) realist approaches developed. The concepts of a realist evaluation will be discussed including a critique of the methodology and finally the research questions and an overview of the research project, ethical considerations and researcher positionality will follow.

2.2 Introduction

Realist evaluation was first described by Pawson and Tilley in the 1990s (Pawson and Tilley 2014) and stemmed from the philosophical paradigm they termed scientific realism. In order to understand scientific realism, and therefore realist evaluation, its location within the spectrum of scientific, philosophical paradigms will be described and the strengths and criticisms of using this epistemology will be considered.

Scientific study stemmed from the natural sciences which used a positivist philosophy (Chalmers, 2013). Positivists view only facts that can be derived from measurable phenomena as knowledge and use controlled experiments to infer causal relationships (Benton and Craib, 2017). Within the field of medicine and healthcare research and evidence-based practice, positivistic studies, through randomised controlled trials remain the most highly regarded methodology for studying the effectiveness of treatments (Medical Research Council, 2000). As people, communities and societies became topics for scholarly study, limitations in the positivist model became apparent (Benton and Craib, 2017). It is not possible to study concepts such as people and how they organise themselves into societies through scientific experiments because society does not operate in a closed system (Corry, Porter and McKenna, 2019). Something that occurs in an experiment might not necessarily happen in nature. There might be any number of mechanisms occurring at once and maybe some forces cancelling each other out. The mechanism you observed in the experiment may

be happening, but you can not see the results due to other mechanisms (Vandenberghe, 2009).

This gave rise to interpretivists' views of knowledge who believe that humans generate knowledge through their experiences and perceptions of interacting with their environments (Chalmers, 2013). This position comes under criticism for being subjective, unreliable and difficult to generalise (Benton and Craib, 2017). Meaning relies on an individual's ability to understand and communicate their experiences and is limited by the extent of their own awareness (Williams, 2017).

In contrast to these positions, realism comes from a different perspective. Whereas in previous paradigms the theorists began with the problem of epistemology, or how we gain knowledge, a realist approach is led by ontology, focusing on what exists and the problem of how we uncover this (Vandenberghe, 2009). Realism is based on the principle of independent reality; the concept that phenomena exists and that this is not dependent on our knowledge of it, or whether or not it is observable (Chernoff, 2016).

Within the field of social sciences, realism is concerned with observable phenomena, something occurring that we can see and the underlying mechanisms that cause this to happen (Williams, 2017).

2.3 Critical realism

Critical realism stemmed from the work of philosopher Roy Bhaskar, who identified that what is real (ontology) should not be reduced to our knowledge of the world (epistemology). He termed scientists' reliance on this way of thinking, the epistemic fallacy (Vandenberghe, 2009). Bhaskar was also influenced by critical theorists such as Marx, believing in emancipation through a greater understanding of the world (Williams, 2017)

Critical realists believe that the nature of our reality is made up of multiple layers or a stratified ontology (Fletcher, 2017). The top layer is the 'empirical' level, that humans can experience and observe. The second layer is the 'actual' level, which is where events occur, whether humans are aware of them or not. Beneath the 'actual', is the 'real' level, which is made up of causal mechanisms, this is hidden from our human perception, but when activated, causes events to occur and this can be seen at an empirical level (Morin, Olsson and Atikcan, 2021). Realist researchers aim to develop

theories about the causal mechanisms that occur in the 'real' level, whilst acknowledging that although research can move us closer to understanding these mechanisms, we will never truly be able to know the 'real' level (Benton and Craib, 2017). This is called ontological depth (Jagosh, 2019).

Bhaskar identified that positivist scientists were conducting experiments within closed systems, where environmental factors and other variables were controlled, and the working parts of the experiment were isolated for testing (Pawson, 2013). They were then using the results of these experiments to develop generalisable laws which could be implemented in the real world. Bhaskar, however, challenged that the real world is an open system, where there are many overlapping and interacting mechanisms at play, which limited the generalisability of the scientists' findings (Joseph, 2001). Instead of considering that the world is made up of laws, Bhaskar proposed that the world was made up of mechanisms (Pawson, 2013). Therefore, in a closed laboratory system a mechanism may be triggered, and an outcome occur, however, the same mechanism may be affected by other forces within an open system, which in turn may affect the overall outcome (Vandenberghe, 2009; Walsh and Evans, 2014).

There have been criticisms made towards the critical realist philosophy. One such criticism has been made from a positivist standpoint. Positivism considers only knowledge that can be observable (and causal relationships that can be proven) to have any scientific weight (Benton and Craib, 2017). This presents a problem for critical realism that seeks to identify underlying mechanisms that contribute to observable phenomena and that may not be observable or measurable in any way. Critical realism values any research methodologies that best answer the research questions (McEvoy and Richards, 2006). This includes interpretivist data, information gained about the world that has been interpreted through the lens of the observer. In contrast to positivism in which inductive or deductive reasoning is applied, the critical realist researcher participates in knowledge building through retrodution, a process of theorising and testing, back and forth, to uncover mechanisms and their empirical outcomes (Reed, 2009) (2.5). As such, mixed methods of research, both qualitative and quantitative may be utilised to answer research questions (Williams, 2017). Purist positivists however would argue that these research methods carry

with them differing and conflicting assumptions and are therefore incommensurable (McEvoy and Richards, 2006).

Critical realists argue that there is always an element of interpretivism within all research. Within positivism there is a problem with a reliance on observable information, that despite using experiential methods to increase objectivity such as blinded randomised controlled trials, researchers will be influenced by their prior knowledge and expectations, such as through the questions they ask or how they design the study (Williams, 2017). On top of this we interpret these observations into facts using the knowledge we have already learnt which can be open to subjectivity and bias. Facts are generalised into theories or laws until future evidence arises that no longer accommodates them (Williams, 2017). According to critical realists, there are no observations that are not interpreted through our values and previous experience (Vandenberghe, 2009). Therefore, it should be accepted that all knowledge and facts are fallible and open to correction (Chalmers, 2013).

Positivist research is carried out by limiting the number of variables and controlling the context that experimental inquiry takes place within, in a clinical context usually by way of a randomised controlled trial (Morin, Olsson and Atikcan, 2021). In order to conduct such research in a social science setting, researchers can make use of randomisation and blinding techniques, but they will make assumptions about the circumstances of those taking part in the trial and will use large numbers of participants to account for variations in the participants (Williams, 2017). It is likely that those taking part in a trial will be different from the general population, and the act of being in a trial will affect the context that is being observed, for example people will behave differently because they are being observed, the Hawthorne effect (Parahoo, 2014). Therefore, it can be hard to generalise the findings of a randomised controlled trial to that of real life, as the contexts will be different.

Critical realists identify that it is problematic to make objective observations through the senses about human behaviour and you cannot separate humans' behaviour from their meanings. This challenge was first made by Kant stating that you cannot identify generalisable laws of human behaviour because human behaviour is related to the choices and motivations of individuals (Corry, Porter and McKenna, 2019).

Critical realism is very relevant to the field of healthcare research, which operates within the open system of the social world (Walsh and Evans, 2014; Williams, 2017) and is well placed to understand complex problems such as the difficulties in replicating therapist interventions from RCTs into real world settings (Wells *et al.*, 2012).

2.4 Scientific realism

Pawson's scientific realism was influenced by the work of critical realist theorists (Pawson, 2013). However his work deviates from Bhaskar who, as he developed his critical realist perspective was influenced by critical theorists (Williams, 2017). Pawson moved away from Bhaskar's emancipatory focus combining other influences such as Archer's Realist Social Theory and Popper's Logic of Scientific Discovery (Pawson, 2013).

As with critical realism, scientific realism has a focus on ontology, a stratified reality and ontological depth (Pawson and Tilley, 2014). Another similarity is a focus on an eclectic use of different research methodologies dependent on the research question and retroductive reasoning (Pawson, 2013).

There are strengths of the scientific realist philosophy in relation to this study. It facilitates researchers to explore causal mechanisms and how they relate to different contexts within the training programme, for example we can consider different therapist backgrounds or different therapy teams. It has a focus on ontology, which allows methods of research to be determined by the research question (Emmel *et al.*, 2018); this enables the use of research methods that are not typically used within the same research paradigm but facilitate a greater depth of understanding the phenomena.

As scientific realism is heavily influenced by critical realism, the critiques of critical realism are also relevant. Critical realism comes under contention from a positivist position that the approach is open to bias and subjectivity (Walsh and Evans, 2014). From another perspective, interpretivists refute the possibility that reality can exist outside of each humans' understanding of it (Walsh and Evans, 2014).

In response to these criticisms, scientific realists identify that all research is open to subjectivity even if this is not acknowledged and that a realist approach reinforces the need for proposed generative mechanisms to be as robust as possible (Walsh and Evans 2014). Realists also claim that mechanisms are real, and they can be tested or demonstrated in their effects (Astbury, 2018a). However, our understanding can only be generative as opposed to definitive as research can only ever identify humans' understanding of the mechanisms, rather than the actual mechanisms themselves (Westhorp, 2018). Williams (2016) states that we can identify potential mechanisms for certain contexts and although we will not be able to determine the whole truth of how this works, we can explore it with enough rigour to determine whether this is an accurate representation of a system, given the information we have.

Realist evaluation is the research approach associated with this paradigm and is described below [2.6](#). It is particularly well suited to evaluating programmes of intervention that are implemented within the complex and constantly evolving social world, because these define the different context in which action, activity and interventions take place (Green and South, 2006).

2.5 Induction, deduction and retroduction

Researchers use reasoning to develop explanations from their findings. Deduction seeks to make predictions based on knowledge and theories that are already known (Morin, Olsson and Atikcan, 2021). An example of this would be, it is known that insects have six legs, and spiders have eight legs, therefore the spider cannot be an insect. Induction, is a way of reasoning where the researcher repeatedly sees regularities within the world, surmise that we can make claims from this and in doing so build new knowledge (Williams, 2017). This new knowledge can then be tested through experimentation (Morin, Olsson and Atikcan, 2021). Induction and deduction have primarily been used in science to draw conclusions about the world.

Retroduction is similar to induction in that it seeks to determine new knowledge, however, it differs in the way this is done. In retroduction, the researcher makes observations of individual events and seeks to combine these with what is already known about the world, in order to develop a new theory which can be tested

through experimentation or other methods of research (Morin, Olsson and Atikcan, 2021). In this way both induction and deduction are used and new theories around causal insights can be generated (Mukumbang, 2023). Within realist research, a theory is derived, based on deductive reasoning, this is then explored through research which will refine the theory through inductive reasoning (Wong *et al.*, 2017). This can be repeated to gain greater clarification, and the process is called retrodution or retroductive theorising (Mukumbang, 2023).

2.6 Realist evaluation

Within social sciences research there is an understanding of complexity; that social systems are made up of dynamic, overlapping, multi-faceted and constantly evolving interactions (Williams, 2017). Mukumbang (2023) states that being able to utilise rich theorising is necessary to explore the complex nature of social interactions within the open system of the real world. Identifying the pertinent aspects of a system's context is complex (Morin, Olsson and Atikcan, 2021), however we may begin to understand what is occurring in the social world through mechanisms and case studies (Williams, 2017). Williams (2018) explained this as;

'the complexity of social life cannot ever be grasped because it is too much and too fast in its change. But underlying that complexity are ontological features which shape and limit change and give rise to the relative invariance of things we can measure, or at least to an extent know.' (Williams, 2018)

The PrAISED training programme is an example of a complex system. A range of therapists deliver the intervention and the different healthcare trusts within which it is being delivered will result in a vast number of causal mechanisms or factors that will affect the delivery of the intervention. The therapists will not be delivering the intervention in isolation but in the context of their experience, personal characteristics, other work, and own world views. They may have different goals in mind when undertaking the training, for example, alongside wanting to provide a certain intervention as per the protocol, they may also be concerned about developing their skills and their profession.

This study used a realist evaluation approach. This form of theory-based evaluation aims to develop an underlying programme theory to explain how a programme works, under certain conditions, to create outcomes (Org and Westhorp 2014). There have been numerous influences on the development of the training programme, it is important to unpick these different elements and explore potential programme theories to enable a deeper understanding of what is needed to train therapists in a complex intervention trial.

The therapy training programme is constructed of multiple, interconnected components and is influenced by numerous contexts. As well as identifying if the training programme is successful, it would be useful to identify what aspects of the programme work in which situations, in order to use the knowledge to develop training programmes in the future (Greenhalgh *et al.*, 2015). It is the intention of this PhD to reveal these mechanisms to further the knowledge of implementing complex interventions in clinical trials.

Realist evaluation is an appropriate methodology for identifying whether an intervention, programme or policy works and how (Westhorp, 2014), aiming to identify 'what works, how, for whom, in what context and to what extent' (Greenhalgh *et al.*, 2015). Realist evaluation identifies 'demi-regularities' or patterns, within a system to provide knowledge on how a programme operates. This may appear straightforward but when considered in the social world becomes much more complex. This evaluation used a typical generative causal framework for explanation; a mechanism will be triggered in a certain context resulting in intended or unintended outcomes, (Pawson and Tilley, 2014)([Figure 7](#)).

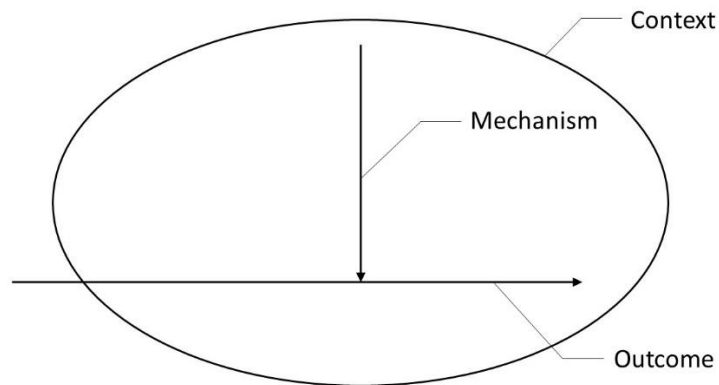


Figure 7: Generative causation (adapted from Pawson and Tilley 2014 p. 58)

2.6.1 Context

The context of the social world is complex and constantly changing. Contexts are constructed from both the physical setting within which a programme operates but also societal constructs such as social rules and values (Astbury, 2018a). Porter's critique of the realist evaluation methodology highlights that it can be difficult to distinguish whether a concept is a context or a mechanism (Porter, 2015b) and it may be that in certain situations a context may become a mechanism (Westhorp, 2018). Contexts can be seen to exist at different levels within the social world and it would not be possible to explore all of these. This study used programme theory to identify initial contexts of interests and build on these to identify areas pertinent to the action of the training programme. Typical contexts might relate to the therapists' backgrounds, their working patterns and competing demands, the therapy teams, (how they work together, overall experience and leadership), or the wider organisations within which the teams are situated, (unique structures, drivers and influences). The geographic and socio-economic environments they are located in might also be considerations.

2.6.2 Mechanisms

Williams (2018) describes the level of complexity in a model as

'a number of overlapping and interacting mechanisms that evolve over time...'

(Williams, 2018, p. 31).

Mechanisms are invisible as they operate at the level of reality that is not observable to humans. They exist in a potential state and become activated in certain contexts (Williams, 2018). Pawson and Tilley (2014) identified that mechanisms are constructed of a resource from the programme and the reasoning of the humans operating within the system. However, this theory has been critiqued by Westhorp (2018) and Dalkin et al (2015) who identify that mechanisms can be considered a much wider concept (Dalkin *et al.*, 2015a; Westhorp, 2018). This realist evaluation aimed to describe the mechanisms that acted within a context, considered theoretically how they work and tested these through research. The mechanisms explored within this study focused on what aspects of the programme caused changes in the practice and clinical reasoning of the therapists, resulting in the intervention being delivered to a high level of fidelity or not.

2.6.3 Outcomes

The final part of the context, mechanism, outcome configuration is that of outcome; what can be observed to have occurred as a result of the mechanisms firing within certain contexts (Greenhalgh *et al.*, 2015). There are likely to be a range of outcomes, client engagement, adherence to the intervention, change in client health status, therapist job satisfaction, however the focus for this piece of research, was whether the therapists delivered the intervention with fidelity. This was more complex than stating to what degree the trial intervention was delivered with fidelity as it will require consideration in terms of contextual factors to establish whether any demi regularities, or patterns exist. By utilising a realist evaluation approach, it was possible to identify links in terms of causal mechanisms and a more in depth understanding of the concepts was developed.

2.6.4 Programme theories

Realist evaluations are built on programme theories. Marchal, Kegel and Van Belle (2018) described programme theories as

'...the set of assumptions of programme designers (or other actors involved) that explain how and why they expect the intervention to reach its aim(s) and in which conditions' (Marchal, Kegels and Van Belle, 2018, p. 83).

Programme theories are the realist researchers' way of articulating the context, mechanism and outcome configuration. Programme theories are initially postulated utilising literature reviews, stakeholder consultations or exploratory research (Marchal, Kegels and Van Belle, 2018). These can then be specified and considered both in terms of their component parts, and as a complete statement. Westhorp et al (2015) suggests a way to articulate programme theories can be done using 'if...then...because' statements. In these statements, 'if' denotes the context, 'then' the outcome and 'because' the mechanism. For example, 'if' a certain context is present, 'then' a certain outcome may be observed 'because' a mechanism has been triggered.

2.7 Critique of realist evaluation

As with all research methodologies, there are some critiques to the realist evaluation approach. Realist evaluation is a relatively new approach (Greenhalgh *et al.*, 2015). The seminal text proposing realist evaluation as a way of understanding programmes within the social world was written by Pawson and Tilley in 1998 and is not an easy read. The concepts are currently being debated and refined within the realist community. For example, there has been some debate as to what constitutes a mechanism (Greenhalgh *et al.*, 2015; Porter, 2015a), with researchers expanding on Pawson and Tilley's original description of the concept (Dalkin *et al.*, 2015b; Westhorp, 2018).

Pawson (2013) acknowledges the complexity of programmes and the systems within which they operate. He has proposed to use a formulation for investigating systems in the context, mechanism, outcome approach (Pawson and Tilley, 2014) and this has been criticised for its simplicity (Dalkin *et al.*, 2015b; Williams, 2017; Jagosh, 2019).

However, this is acknowledged by Pawson who recognises that despite the complexity of the social world and the multi layered dimensions of reality, there are regularities and that in identifying these regularities within certain contexts we can begin to uncover mechanisms that explain how programmes work (Pawson and Tilley, 2014).

Randomised controlled trials are considered the highest level of empirical research evidence in defining causal relationships, including treatment or training effects (Pringle and Churchill, 1995; Hariton and Locascio, 2018; Skivington *et al.*, 2021) Their strength lies in reducing bias through the use of randomisation and blinding, and the use of statistics to determine size of an effect and if the findings are more likely the result of an intervention rather than chance (Morin, Olsson and Atikcan, 2021). Realist evaluation however is not seen as a gold standard and therefore may not have the same credibility in terms of validity, and reliability ascribed to other research methods (Jack, 2022). However, randomised controlled trials do have many limitations, for example, they are costly, may require large number of participants (Hariton and Locascio, 2018), and there are limitations with generalisability due to the artificial nature of some of the research processes (recruitment, selection bias etc.) (Pringle and Churchill, 1995). In contrast to RCTs which aim to tell us if an intervention works in a certain set of circumstances, the realist evaluation offers to explore how an intervention works, or doesn't work under different circumstances (Kelly, 2018), thus making it useful in a way that a randomised controlled trial is not.

2.8 Research questions and objectives

2.8.1 Primary research question

How does a training programme for an experienced therapist work to enable delivery of a complex rehabilitation intervention in a research setting, to what extent and why?

2.8.2 Research objectives

1. To undertake a scoping review to map relevant literature that explores learning theories that enable experienced therapists (OT and PT staff, and

unregistered therapy support staff), to develop practical and clinical reasoning skills.

2. Explore therapists' experience of completing training on a complex intervention and identify what aspects of the training programme are viewed as the most effective.
3. Determine whether the training programme enables therapists to carry out the intervention as intended.
4. Explore aspects of the training programme that facilitated or hindered the therapists' implementation of the intervention and how these changed over the duration of a study.
5. Examine the influence of the therapist and other contextual factors on the therapists' implementation of the core concepts taught within the research setting.
6. Develop guidelines for designing and implementing training programmes for therapists delivering complex interventions across multiple sites within a research setting.

2.9 Overview of the realist evaluation

As realist evaluation is a strategy rather than a methodology it does not prescribe research methods (Pawson 2013). Realist evaluation stems from realist paradigms, that consider ontology the primary focus, therefore, similarly to critical realist research, it is not associated with a particular research methodology (Emmel *et al.*, 2018). Mixed methods can be appropriate as the methods should be relevant to the research questions and adapt and evolve to meet the needs of emerging programme theories (Dalkin et al 2015). The methods used are outlined below.

The study was conducted through a mixed method, iterative design. The research was carried out in four stages ([Figure 8](#)).

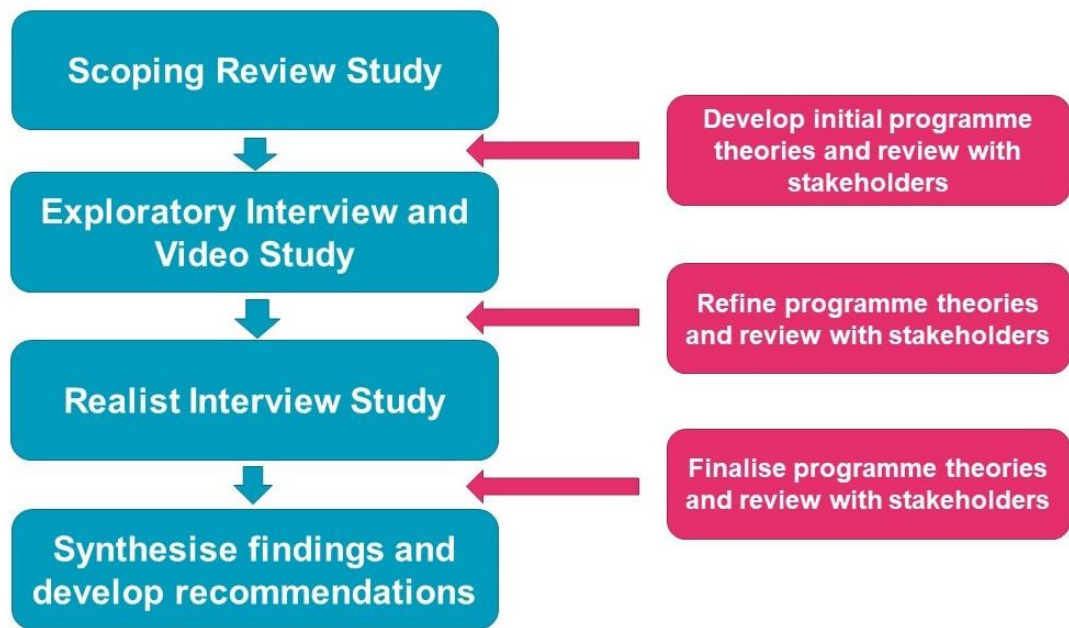


Figure 8: The research process

The initial programme theory was developed from the scoping review, in conjunction with a stakeholder consultation. A mixed methods exploratory interview and video study, refined the programme theories into more detailed context, mechanism and outcome configurations. Finally, a realist interview study was used to test these more detailed theories with the therapists to ensure the theories were consistent with their experiences. The programme theories, at each stage were presented in the form of context, mechanism and outcome configurations utilising a tabulated approach described by Gilmore et al (2019) to demonstrate the process of retrodution (Gilmore *et al.*, 2019).

Stakeholder consultation was involved at pivotal points within the study to increase rigour and transparency. Stakeholder involvement has been advocated in realist evaluation literature regarding development of programme theories (Marchal, Kegels and Van Belle, 2018). In this study the stakeholders were consulted either individually or in small groups and included representatives of the therapists' organisations, patient and public involvement (PPI), experienced rehabilitation researchers and experienced realist evaluation researchers. The iterative nature of the overall PhD, the use of mixed methods and stakeholders, contributed to

triangulation of the findings which increased the rigour of the study (Tobin and Begley, 2004; Johnson, Adkins and Chauvin, 2020)

Detailed methodology for each study will be found in the relevant study chapters ([3.3](#), [4.2](#), [5.2](#)).

2.10 Ethical considerations and the positionality of researcher

All human research has an ethical dimension. Ethical issues arise in the individual studies and specific ethical considerations and ethical approval will be detailed in each section. The main ethical concern for this study relates to the researcher's positional influence on the evaluation. Positionality refers to an individuals' beliefs and assumptions about the world around them, how they interact with the world and how they understand it (Holmes, 2020). Mays and Pope (2000) state that being reflexive, giving consideration to how the researchers positionality influences a piece of research can help increase the validity of the study.

The researcher on this realist evaluation was not in a neutral position, which has positive and negative implications. The researcher was a qualified, experienced occupational therapist, with experience receiving post graduate training on complex interventions. The researcher also had a paid role on the research study for which the therapists were employed. One of the researcher's responsibilities was to contribute to the team that designed and delivered the training programme to the therapists implementing the intervention.

This position has some negative epistemological considerations for this study which introduce the possibility of bias. Firstly, as part of the team developing and delivering the training programme, the researcher may have already made assumptions about the quality and effectiveness of the programme. The researcher had met and established a trainer – learner relationship with the therapists taking part in the study. This may lead to the therapists feeling obligated to take part or respond in a certain way.

To mitigate some of these concerns, several processes were put in place. The researcher made use of the stakeholder and supervisory group to discuss and refine programme theories and ultimately the recommendations that evolved from this

research. Another step the researcher put in place was to be open about the researcher's position at the beginning of the research activities with the therapists, to highlight that the researcher was aware it may be an issue and encourage an open and honest dialogue. The participant information sheets also highlighted that there would be no penalty for the therapists, whether they chose to be part of the study or not.

As well as presenting with potential negative implications, the researcher's position may have had some positive implications. The researcher's prior relationship with the therapists meant that a rapport was established prior to any research activities. For some therapists this may have led to them feeling they could be more candid and open in their responses. Another positive was that the researcher understood the language, concepts and structures that the therapists were discussing which may have led to therapist being able to explore topics in more depth.

These considerations will be reviewed in terms of the research findings in the discussion chapter of this PhD ([Chapter 6](#)).

2.11 Chapter summary

This chapter has outlined the philosophical underpinnings of realist research through an exploration of scientific realism and its precursor, critical realism. The nature of realist evaluation as an approach has been described and critiqued and its relevance to this research study has been justified. The research question and aims for the PhD have been outlined as well as an overview of the realist evaluation, the research process and ethical considerations have been discussed. The realist evaluation is being conducted through three iterative studies. The next three chapters ([Chapter 3](#), [Chapter 4](#) and [Chapter 6](#)), provide a thorough description of the methods utilised in each study, the findings generated and the evolution of the programme theories being evaluated.

Chapter 3: Identification of initial programme theories: Scoping review and initial stakeholder consultation

3.1 Chapter overview

In the previous chapters a lack of evidence for training and supporting experienced therapists to deliver complex interventions for research trials was established ([Chapter 1](#)) and the rationale for utilising a realist evaluation approach was explored ([Chapter 2](#)). This chapter will identify initial programme theories which were subject to a realist evaluation, refined and consolidated through future chapters ([Chapter 4](#) and [Chapter 5](#)). The initial programme theories were identified through two processes, a scoping literature review exploring learning theories that are used in the training of therapy staff and an initial stakeholder consultation.

3.2 Scoping literature review

3.2.1 Introduction

Learning theories conceptualise the process by which individuals acquire knowledge and skills that lead to adaptations in behaviour or performance (Mukhalalati and Taylor, 2019). Therefore, in the evaluation of the training programme it is likely that some of these processes will become evident in the mechanisms that led to the therapists learning and implementing a new intervention. Due to the heterogenous nature of the human experience, people can learn in many different ways, which has led to the wide range of learning theories that are used in adult learning (Beard, 2006). Two key papers, Mukhalalati and Taylor (2019) and Taylor and Hamdy (2013) provided classification and guidance on the use of learning theories for medical education and healthcare professional education respectively and these are listed below ([3.3.1.2](#)). These papers, although providing a thorough reference guide, are too broad to report on what theories are currently used to effectively train therapy staff.

There are currently no systematic reviews on this topic reported on or in progress according to the Prospero database. A review of current literature identified a scoping review of educational approaches and learning strategies in OT (Hooper *et al.*, 2013) and a protocol for a systematic review of learning activities in PT (Leahy *et al.*, 2013).

al 2017). These studies are of limited value as the former was restricted to undergraduate therapists and both are profession specific and exclude unregistered therapy staff. A protocol has been published for a scoping review of teaching theory and methods in post graduate health education (McInerney and Green-Thompson, 2017), which includes OT and PT but not as the specific population. Therefore, the McInerney and Green-Thompson (2017) study is likely to be broader and encompass a wider range of learning approaches which may be less relevant to the delivery of complex rehabilitation interventions.

A scoping review was chosen as the literature being considered encompassed a wide and heterogeneous area and the review aimed to examine the extent and type of literature available (Munn *et al.*, 2018). Scoping reviews allow available literature to be mapped across a broad area and encompass different study designs (O'Brien *et al.*, 2016). They aim to identify what research exists for a given topic and subsequent gaps in the evidence base. A systematic review aims to synthesise evidence and draw conclusions on a specific question, to identify trends in an evidence base and support policy decision making (Munn *et al.*, 2018). Given the rationale for the review, a scoping review methodology was the most appropriate. A realist review was also considered, as this study was part of a realist evaluation. Realist reviews aim to explore heterogeneous literature to identify how context, mechanisms and outcomes interact on a given topic (Wong *et al.*, 2014). However, realist reviews tend to be lengthy, iterative and complex, often starting with a scoping review (Booth, Wright and Briscoe, 2018, p. 155) and therefore would not be feasible within the constraints of the overall PhD.

In the evaluation of the training programme, it is likely that some of these learning theories will become evident in the mechanisms that led to the therapists learning and implementing a new intervention. This section will set out the methods, and findings alongside a narrative synthesis of the included papers and a discussion of the learning theories identified. This section will conclude with the consideration of any potential initial programme theories that can be ascertained from the review that will contribute to further studies within the PhD. Learning theories however, do not fully explain how health professionals develop knowledge and skills (Taylor and

Hamdy, 2013), therefore this section is followed by the description of a stakeholder consultation which also contributed to the initial programme theory development.

3.2.2 Aims of the review

The aim of this scoping review was to map relevant literature that explores learning theories that enable therapy staff to develop practical and clinical reasoning skills.

3.2.3 Study Objectives

- To complete a scoping review of relevant literature
- To share findings with a stakeholder group ([3.9](#))
- Identification of potential programme theories from the learning theories that may be at play in the training programme, that result in the therapists delivering the intervention at a high level of fidelity to the manual.

3.2.4 Review question

What theories of learning are used for experienced OT and PT staff (registered and unregistered) to develop skills in practice and clinical reasoning?

3.3 Methods

For this study, the protocol was developed using the guidelines from the Joanna Briggs Institute (JBI) (Aromataris and Munn, 2020) and is reported using PRISMA guidelines for scoping reviews (Tricco *et al.*, 2018). Methods and search terms were discussed with an experienced librarian.

3.3.1 Eligibility criteria

3.3.1.1 Types of population

Studies were included that involved learning theories used with OT, PT and associated unregistered therapy support staff (for example, therapy assistants, technical instructors, or rehabilitation support workers). They included examples of

learning theories used in delivering new practice interventions or evaluations of training programmes. Due to a lack of published studies, it was not possible to utilise studies that reported on training therapists to deliver interventions for the purpose of research, therefore any training programmes for experienced staff was considered. Papers that reported on multidisciplinary groups were included, if they contained any of the 15 AHPs listed by the Health and Care Professions Council (HCPC, 2017) or medical or nursing colleagues. This is because OT and PT staff often work in multidisciplinary groups and may receive post graduate training relating to a specialist area of work (McInerney and Green-Thompson, 2017), rather than profession specific training. Studies reporting on training for undergraduate therapists or newly qualified staff were excluded.

3.3.1.2 Types of concepts

Studies were included that referred to theoretical approaches to learning and education, that have contributed to the development of clinical skills, how these have been implemented and the impact these have had on the learners' professional practice. The use of theoretical approaches was identified through a statement in the paper that identified that a theoretical approach had been used. The learning theories included were identified using two key papers, Taylor and Hamdy (2013), and Mukhalalati and Taylor (2019) and are identified below.

- Instrumental learning theory
 - Behavioural theories
 - Cognitivism/cognitive learning theory
 - Experiential learning
- Humanistic theories
 - Self-directed learning
 - Andragogy/Adult learning theory
- Transformative learning theory
 - Critical reflective learning
- Social theories of learning/Social learning theory
 - Community of practice

- Situated cognition
- Zone of proximal development
- Motivational theories
 - Self-determination theory
- Constructivism
 - Cognitive constructivists
 - Socio-cultural constructivism
 - Problem based learning transformational learning
- Reflective learning
 - Reflection on action
 - Reflection in action.

3.3.1.3 Types of contexts

Although the review was particularly interested in learning theories relating to experienced therapists working within healthcare, it also reviewed literature from other practice settings. There were no restrictions on the contexts of the included papers as there may have been relevant literature in these areas that could contribute to understanding how professional skills are developed.

3.3.1.4 Types of outcomes

This review was interested in studies that reported on the use of learning theory that has resulted in the population described developing practical therapy skills and clinical reasoning skills. For example, studies that resulted in therapists implementing a new intervention or incorporating new knowledge into their existing practice.

3.3.1.5 Types of studies

The review considered literature which presented primary research including randomised controlled trials, non-randomised controlled trials, quasi-experimental studies, before and after studies, prospective and retrospective cohort studies, case-control studies, analytical cross-sectional studies, case series, individual case reports, descriptive cross-sectional studies, phenomenology, grounded theory, ethnography, action research and discourse analysis.

Literature in the form of opinion pieces, commentaries, books, and editorials were excluded.

3.3.1.6 Publication date

Due to the large number of studies identified in the first phase of the search, publications were limited to those published post the year 2000 as recommended by an experienced librarian.

3.3.1.7 Language

The selection was limited to publications written in the English language.

3.3.1.8 Age limits

As there were a large number of studies that related to school age education, during phase one of the search, limits were put on the age range for the population in the publications, to exclude learners under the age of 18 years old as recommended by the experienced librarian.

3.3.2 Search strategy

The search was conducted using the following databases, MEDLINE, EMBASE, AMED, Cumulative Index to Nursing and Allied Health Literature (CINAHL), PsycINFO, Cochrane library and Educational Resources and Information Center (ERIC). Keywords based on the review question were used for the search terms alongside synonyms, broader, related, and alternative terms, as well as citation searches of relevant articles to ensure all relevant studies were discovered. The search strategy was developed with support from an experienced librarian.

3.3.3 Study selection

The search was performed in three phases. The first phase was an initial search to test and refine the search terms. The search was difficult to refine. The key search term 'learning' was identified as the use of the word 'training' resulted in many articles in which some form of training was utilised by therapists as an intervention.

The phrase ‘continuing education’ was used to reduce the occurrence of pre-registration education programmes being found.

[Table 1](#) shows the search terms used and [Table 2](#) presents how the search terms were utilised using the PsychINFO database as an example. The second phase was a full search of the databases detailed above using the same search terms on the 9th July 2020. The third phase was a search of the reference lists on all publications that passed the second full text screening.

The studies were initially screened by title and abstract by one reviewer (LH). The initial screen identified papers that purported to report on either a training programme for experienced OT or PT staff or the implementation of an intervention that required training for experienced OT or PT staff to deliver.

A second full text screening was completed by two reviewers (LH and AL) using predetermined criteria in a Data screening form ([Appendix 1](#) and [Appendix 2](#)). Criteria included that a learning theory was explicitly specified, and the outcomes evaluated therapeutic or clinical reasoning skills that were the result of the training programme. Any disagreements would have been discussed and settled with a third party (VB) however this was not required. Only papers that met the eligibility criteria were included in the study.

Table 1: Search terms for scoping review of learning theories

Search Term	MeSH Headings	Keywords
Occupational therapist	Occupational therapist	Occupational therap*
Physiotherapist	Physical therapist	Physical therap* Physiotherap*
Rehabilitation support worker		Rehabilitation support worker Therapy assistant Physiotherapy assistant
Learning	Learning Continuing education	Adult learn* Adult educat* Continu* educat* Lifelong learn*

Table 2: Example search of PsychINFO for scoping review of learning theories

Table 3.31	exp Occupational Therapy/	6168
2	exp Physical Therapy/	2871
3	(occupational therap* or “physical therap* or physiotherapy* or therapy assistant or rehabilitation support worker”)	19739
4	1 or 2 or 3	19739
5	exp Learning/	264090
6	exp Education, Continuing/	4801
7	(adult learn* or coninu* educat* or lifelong learn*)	13815
8	5 or 6 or 7	277300
9	4 and 8	951
10	Limit 9 to English language	934
11	Limit 10 to over 18 year olds	509

3.3.4 Data extraction

Data were extracted using a Data extraction tool in Microsoft Excel ([Appendix 3](#)) to detail specific information including study aims and methodology, the study population, the specific learning theory and how it was implemented and the study outcomes. A sample of 20% (n=1) were replicated by a second reviewer (AL) to verify that the data was extracted correctly, as recommended by Aromartis and Munn (2017). Data were stored on an Excel spreadsheet.

3.3.5 Assessment of quality

Scoping reviews need to assess the quality of the included reviews if this is pertinent to the research question (Peters *et al.*, 2021). This scoping review considered studies that demonstrated outcomes in either practical or clinical reasoning skills, therefore it was appropriate to determine that the studies included were methodologically sound. Realist inquiry considers that there may be causal insights in studies that have methodological flaws (Pawson, 2007). Therefore, studies were not excluded through critical appraisal, but quality was considered when synthesising results.

This scoping review resulted in a mixture of quantitative, qualitative and mixed methods studies. The JBI critical appraisal tools for assessing qualitative research

(Lockwood, Munn and Porritt, 2015) and quasi-experimental studies (Tufanaru *et al.*, 2017) were used for the appropriate studies. The Mixed Methods Appraisal Tool (MMAT) (Hong *et al.*, 2018) was completed for the mixed methods studies. Although there are both qualitative and quantitative components to mixed methods studies, there is extra complexity in how the studies are combined and the data synthesised (Creswell, 2018) which the separate JBI tools would not capture. To reduce potential bias 20% (n=1) of the articles were critically assessed by a second reviewer (AL) as with the data extraction above ([Appendix 4](#)).

3.3.6 Data analysis

The data are presented in a table from the data extraction form ([Appendix 3](#)), which enables the data to be viewed as a whole. As data synthesis is not appropriate for scoping reviews (Aromataris and Munn, 2020), data were analysed using a narrative review (Dixon-Woods *et al.*, 2005)

3.4 Findings

Once the data searches from the different databases included were combined and duplicates were removed, 2841 citations were identified for the initial screening. Using the title and abstract 2775 were ineligible for inclusion in the scoping review. This left 66 articles for the second round of screening. On reading the full articles three were excluded because the outcomes reported were not based on practice or clinical reasoning skills and 56 were excluded as no learning theories were identified. Seven articles were included in the data extraction phase ([Figure 9](#)).

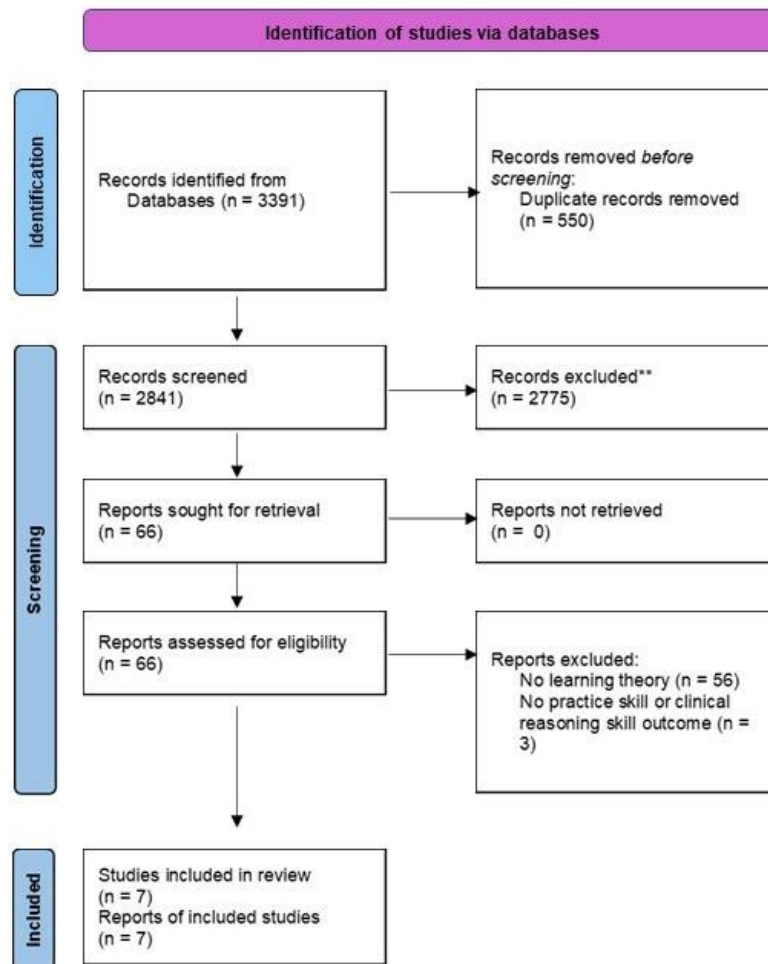


Figure 9: Prisma 2020 diagram demonstrating article selection for scoping review of learning theories

Of the seven articles included in the review, there was a mix of research methodologies, practice settings, therapy staff and the studies were conducted in different countries. These characteristics can be found in [Table 3](#) alongside the learning theories utilised. The following learning theories were identified in the papers and discussed further in the narrative review [3.5](#).

- Adult learning theory (n=3)
- Social cognitive theory (n=3)
- Social learning theory (n=1)
- Communities of Practice (n=1)
- Reflective Practice (n=1)
- Transformative learning theory (n=1)
- Learning transition theory (n=1)

Table 3: Characteristics of studies meeting the inclusion criteria for the scoping review of learning theories

Authors	Research methodology	Types of therapists	Practice setting	Country	Learning theory
(Vachon, Durand and LeBlanc, 2010b)	Qualitative	OT	Vocational rehabilitation	Canada: Montreal	Reflective Practice
(Petty, Scholes and Ellis, 2011)	Qualitative	PT	Neuro-musculoskeletal	UK	Social learning theory, learning transition theory
(McCluskey and Lovarini, 2005)	Quantitative	OT	Any	Australia: New South Wales	Adult learning theory, social cognitive theory
(Dunleavy, 2015)	Quantitative	OT, Including unregistered support staff	Paediatrics	USA: Chicago	Adult learning theory, social cognitive theory
(Tilson <i>et al.</i> , 2016)	Quantitative	PT	Inpatients and Outpatients	USA: Southern California	Adult learning theory, social cognitive theory
(Alden and Toth-Cohen, 2015)	Mixed methods	OT	Older adults	USA	Transformative learning theory
(Camden <i>et al.</i> , 2017)	Mixed methods	PT	Paediatric rehabilitation	Canada: Quebec	Community of Practice

3.4.1 Quality of studies

Overall, the studies appeared to be adequate in terms of quality although there were some areas that could have been expanded on within the articles. For example, Alden and Toth Cohen (2015) did not report on the rationale for using a mixed methods approach and Vachon, Durand and Le Blanc (2010) did not consider the impact of the researcher's positionality on the study within the article. The three quantitative studies, featured pre and post intervention data collection of quasi-experimental designs without control groups (McCluskey and Lovarini, 2005; Dunleavy, 2015; Tilson *et al.*, 2016). The latter two studies having relatively small sample sizes of 16 and 24 therapists respectively.

3.5 Narrative review

The narrative review identified what learning theories were used in the training of PT, OT and associated support staff, how these theories support learning, how they were used in the seven studies included in the scoping review and whether they led to the intended outcomes of the studies.

3.5.1 Adult learning theory or andragogy

Adult learning, or andragogy is a combination of the science and art of how adults learn (Chan, 2010). It is built on the assumptions that adult learners bring life experience to learning and are intrinsically motivated; they learn best when they have some control over the learning process, when the topics are pertinent to their current situation and they understand why they need to learn about them (Ruckert, Plack and Maring, 2014). Taylor and Hamdy (2013) identify adult learning as stemming from work carried out by Knowles, who identified that adults learn differently to children, therefore pedagogy, the theory of how children learn, is not congruent. They state that all learning theories used in medical education are forms of adult learning theory (Taylor and Hamdy, 2013).

McCluskey and Lovarini (2005), Tilson *et al.* (2016) and Dunleavy (2015) all reported that they used adult learning theory within their studies, although arguably, all the

studies used a form of adult learning as described above. McClusky and Lovarini (2005) evaluated a workshop and ongoing support aimed at increasing OTs' evidence-based practice (EBP) skills, knowledge and activities into practice. Using a quantitative longitudinal design, they found that the therapists' knowledge and skills increased following the workshop and at 8 month follow up. However, this did not translate into putting EBP activities into practice. The authors utilised adult learning and social cognitive learning through a two day workshop, ongoing support via email and telephone and an optional workplace visit.

Adult learning was also utilised alongside social cognitive theory by Tilson et al. (2016). They investigated the effectiveness of the PEAK programme, a 6-month long intervention aimed at increasing 16 PTs' implementation of EBP. The PEAK programme consisted of a two day workshop and five monthly workshops in small groups, which included generation of a best practice list. They utilised two knowledge transition frameworks, Promoting Action on Research Implementation in Health Services, and the Knowledge Action Cycle. Initially there was no improvement in knowledge and skills, however, when followed up at 6 months there was a significant improvement. Self-reported behaviour and self-efficacy did improve following the PEAK programme and this was sustained for a further 6 months without follow up support. A review of patient records however demonstrated no change in practice.

Dunleavy (2015) evaluated a training programme employing adult learning and social cognitive theory similarly to the above-mentioned publications. This study evaluated a three hour training course using taught materials, videos and case discussion, in the use of behaviour analysis for 24 OTs and OT assistants working with children with autistic spectrum disorder. The course was evaluated using a longitudinal design, evaluating the therapists' knowledge, skills, and self-efficacy before, after and a month following attending the course. They found some increase in skills and knowledge however there was some deterioration in self-efficacy and inconsistent results in a case study analysis. They highlighted the need for time for reflection to put new ideas into practice and that this might require ongoing support following the course.

3.5.2 Social learning theory or social cognitive learning theory

Social learning theory is identified by Mukhalalati and Taylor (2019), Taylor and Hamdy (2013) and Bradley et al. (2005). Social learning theory was developed by Bandura, a psychologist (Bradley et al. 2005) and encourages the use of behaviour modelling as well as cognitive learning, and a focus on context and environment to strengthen the learning process (Mukhalalati and Taylor, 2019). Social learning theory is identified in Petty et al. (2019) but is described by McClusky and Lovarini (2005), Tilson et al. (2016) and Dulvaney (2015) as social cognitive learning theory. Social cognitive learning theory describes a family of theories that were developed on the premise that learning occurs through interaction with others and the environment, based on the work of Bandura (Torre and Durning, 2015, p. 105). Therefore, for the purpose of this review, social learning theory and social cognitive learning theory have been grouped together.

Social learning theory was used alongside learning transition theory (as detailed below) for experienced physiotherapists completing a Master's level physiotherapy module in manipulation (Petty, Scholes and Ellis, 2011). The use of theories on the training is not described although it was identified that the module included 200 hours of theory, 150 hours of practical skill development and 150 hours of mentored practice. Eleven physiotherapists were interviewed for this qualitative study conducted over three rounds to explore the learning processes that occurred. Using learning transition theory as discussed below they identified a process of critical reflection in response to challenging practice situations that led to new learning.

3.5.3 Communities of practice

Communities of Practice (COPs) are a category of social learning theory, where learning occurs through shared resources, mutual goals and relationships (Torre and Durning, 2015, p. 108). COPs originated in the business world and were promoted within healthcare as a way to develop knowledge and skills and improve healthcare performance (Ranmuthugala *et al.*, 2011). A systematic review into the use of COPs, found that as these have become more widespread in healthcare as they serve to

'...improve clinical practice and facilitate the implementation of evidence-based practice.' (Ranmuthugala *et al.*, 2011).

The same review found that methods of interaction varied, many included some face-to-face contact although differences in reporting made it difficult to draw conclusions on best practice.

Camden *et al.* (2017) used a COP approach with PTs working with children who had a developmental coordination disorder, to increase their implementation of best practices for the condition. The study explored a COP that was set up as one full day, face to face workshop, followed by five months of online forum interaction and concluding with another full day, face to face workshops. This longitudinal study utilised an explanatory sequential mixed method design to demonstrate an increase in self-perceived skills, knowledge, confidence, and changes in behaviour, however their research was limited to self-reported data from the therapist participants. The authors compared the results with a previous study (Camden *et al.*, 2017) which evaluated an online module on the same topic, without the interactive forum. The previous study reported fewer changes in behaviour change and less confidence in the intervention (Camden *et al.*, 2017). Therefore, it was concluded that although self-perceived skills and knowledge were improved with their online module, interactive, sustained strategies such as that provided by a COP forum, were required for behaviour change (Camden *et al.*, 2017).

3.5.4 Reflective practice

Reflective learning can be seen as a learning theory in its own right, as well as having a role as part of other learning theories such as adult learning, experiential learning and transformative learning theory (Taylor and Hamdy, 2013; Mukhalalati and Taylor, 2019). Taylor and Hamdy (2013) explore the use of multiple theories and Mukhalalati and Taylor (2019) explain that the differing theories expand and overlap with each other. Vachon *et al.* (2010) describes reflective practice as

'...an active and deliberate process of critically examining one's own practice and is used to make learning more meaningful and integrate it into one's current experience.' (Vachon, Durand and LeBlanc, 2010a)

Mann, Gordon and MacLeod (2009) identified that although there are different models of reflection, they contain a common premise that by examining a situation, learning can occur that can be applied to similar circumstances in the future. A systematic review of reflective practice within health professions education found that reflection does enhance a deep understanding, but there was little evidence of its impact on clinical practice (Mann, Gordon and MacLeod, 2009). There was some evidence that reflection was enhanced through shared reflection as a group (Mann, Gordon and MacLeod, 2009).

Reflective practice theory was used to improve the implementation of evidence-based practice for OTs in vocational rehabilitation settings for people with persistent pain (Vachon, Durand and LeBlanc, 2010b). Following a four-day continuing education workshop on the same topic, 8 OTs were recruited to be part of a reflective practice group that held 12 sessions over a 15 month period. The authors utilised grounded theory and a collaborative research approach with the group, using cycles of reflection and action. Observational data and reflective journals from the group were analysed qualitatively to evaluate the process. The authors identified that the group utilised different decision-making modes, depending on their emotional response to the situations being discussed. As the sessions progressed, they moved from defensive, repressed or cautious decision-making modes to autonomous intuitive or autonomous thinking modes. Through this process they became more critical of their own practice and more empowered to implement evidence-based practice.

3.5.5 Transformative learning

Transformative learning is a form of critical reflection originally developed by Mezirow in the late 1970s (Christie *et al.*, 2015). Alden and Toth-Cohen (2015) identify the goal of transformative learning as enabling learners to make autonomous judgements rather than relying on the thoughts of others. Christie *et al.* (2015) describes the process as challenging assumptions and changing them if they are found flawed. There are three steps through which transformative learning occurs, encountering a problematic situation, critically evaluating the situation and self-reflection, and finally taking action (Mukhalalati and Taylor, 2019). This theory

seems appropriate for the exploration of therapists' attitudes towards older people in the above study (Alden and Toth-Cohen, 2015).

Alden and Toth-Cohen (2015) utilised a transformative learning approach to reduce elderspeak and improve the attitudes of OTs towards older people. The learning was delivered through a training module that included a 90-minute face to face workshop followed by four weekly, 30 minute online sessions. Reflection on their views, incidents and discussion was used to implement the transformative learning. A longitudinal mixed methods study found that there was only a slight improvement in identification and correction of elderspeak in their workplace. There was a mixed impact on the attitudes of the therapists towards the older person, but this could have been attributed to their increased understanding and awareness of their own views, through the reflective sessions. The sample size was very small and relied upon self-report from the therapists, rather than observations to determine changes in clinical practice.

3.5.6 Learning transition theory

Learning transition theory was originally described by Scholes (2006) in her book 'Developing Expertise in Critical Care Nursing'. Learning transition theory is used to enable healthcare professionals to deliver more advanced practice in their field (Scholes, 2006). Role transitions occur when a person moves from one set of expected behaviours to another, this may come about through a life event or a change of role. The process of role transition for career development happens through four phases; preparation which may include mentorship or expression of need, an encounter, which might be the first few days in a new role, an adjustment period and then a stabilisation phase. The model also acknowledges the emotional challenges that may be taking place and how the 'transitioner' and their 'facilitator' can navigate this process. Reflection on experiences during the transition and during previous transitions enables the 'transitioner' to understand the process (Scholes, 2006).

Learning transition theory was described in the publication by Petty et al. (2011) who used this theory alongside social learning theory to explore the learning experiences

of PTs completing a Master's level course in manipulation. This theory was not identified prior to the literature search, however, the description included in the paper describes a process of critical reflection that appears relevant for inclusion. Learning occurs when the learner experiences a situation that contradicts their beliefs, and this leads to critical reflection. The learner may then react defensively, or receptively to this experience and the resulting action is their learning outcome (Petty et al. 2011).

3.5.7 Narrative review summary

The learning theories identified in this scoping review and how they have been implemented in research studies have some similarities. Many include a degree of social involvement, the learning was carried out within a group context for example. Similarly, reflection was used as a tool within many of these studies to progress learning and integrate theory into practice. [Figure 10](#) identifies how the learning theories identified relate to each other. The diagram was developed by considering how the learning theories found in the scoping review linked together. They all came under the banner of adult learning theory, therefore all the theories could be seen within this circle. Two broader themes brought the rest of the theories together. Communities of practice and social cognitive learning theory are related to social learning theory, and reflective practice, transformative learning and learning transition theory are types of reflective learning theory.

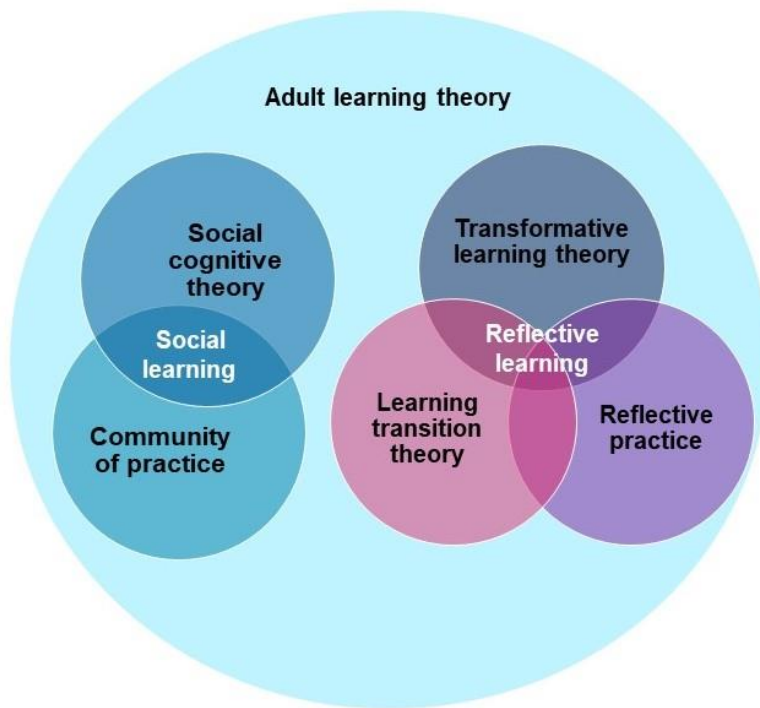


Figure 10: Diagram demonstrating convergence of learning theories from studies within the scoping review

3.6 Implications for the Realist Evaluation

This scoping review explored the use of learning theory within the learning and education of therapy staff, with a view to identifying theories that could be at play within a training programme being appraised as part of a realist evaluation. The training programme aims to support the learning of experienced OTs, PTs and rehabilitation support workers in the implementation of a complex intervention across five sites in the UK as part of a multi-site randomised controlled trial.

A number of the learning theories in the review included an element of social learning, for example sharing knowledge, observing and modelling and learning from other learners (McCluskey and Lovarini, 2005; Tilson *et al.*, 2016; Camden *et al.*, 2017; Dunleavy *et al.*, 2018). The realist evaluation could therefore consider which therapists valued these learning activities and whether their social context effected their engagement and learning. Following this scoping review the realist evaluation will include the exploration of social learning, for example the use of group work within training and group mentoring during the training programme.

A second recurring theme within the scoping review was the use of reflection. Vachon et al. 2010 used reflective practice as its theoretical base and Petty et al. (2011) and Alden and Toth-Cohen (2015) also use theoretical models that are rooted in reflection of critical incidents. Combined with this Tilson et al. (2016) identified that the physiotherapists' knowledge and skills showed improvement at a six month follow up, which indicated that some learning may be happening following the course, this could be a result of the therapists utilising, reflecting, and integrating their new knowledge. Dunleavy (2015) identified that their OTs would have benefitted from a refresher training event following their course to enable therapists to problem solve difficult cases, further highlighting the possible use of reflective practice to enhance learning. Therefore, reflective practice, such as reflection on case studies during training or on case examples during mentoring, may be potential causal mechanisms that are occurring in the delivery of the training programme under investigation.

3.7 Limitations

There are limitations that are present within this scoping review. One limitation was that literature searches were not carried out for each of the learning theories identified within the eligibility criteria alongside the population search in each database. This was attempted during the first phase of the search that refined the search terms, however, for some theories there was an unmanageable number of citations returned. Advice was sought from the experienced librarian resulting in the choice of search terms identified above.

Two papers were included that reported on the development of implementing evidence-based practice (McCluskey, 2003; Tilson *et al.*, 2016). There were some concerns over whether these met the outcome criteria for the scoping review, however, the papers reported on how this was applied in practice and due to the limited amount literature already found, it was felt that the papers made a useful contribution to the review.

There were many studies excluded from this study as there were no learning theories specified in the publication. It may have been that these were implicit, or that

authors of the papers had used learning theories but had not included this information in the final paper. In future reviews of this kind, it might be possible to contact the authors and ask about learning theories.

Marchal et al (2018) advises on the use of a realist reviews to identify initial programme theories. A realist review requires a more lengthy, iterative process and therefore was not chosen for this study. In the future a realist review based on how experienced therapists learn to deliver new interventions would provide a useful addition to current literature and guidance for practice development (Marchal, Kegels and Van Belle, 2018).

How therapists learn clinical skills is very complex. Another concern with this review is that there are elements of how therapists learn that have not been identified. For example, it does not consider how therapists learn critical reasoning skills or how to integrate new learning into their existing practice, other than utilising reflective practice. Therefore, although these theories can begin to shape potential programme theories and mechanisms that can be used in the training of therapists, this will only show a partial aspect of the overall picture.

3.8 Scoping review conclusion

The research question sought to identify what learning theories are used when experienced PTs, OTs and associated support staff, complete training to develop practice or clinical reasoning skills. The review identified a number of learning theories, namely social learning theory or social cognitive learning theory, communities of practice which are a type of social learning theory, reflective practice and two other types of reflective theories, learning transition theory and transformative learning theory. Adult learning theory was also identified and could be considered as encompassing all of the above theories.

Although only a small number of studies were found that explicitly stated using learning theories, there are commonalities in the learning theories identified which were then taken forward to inform the programme theories as part of the realist evaluation. Social learning, for example learning through discussion and modelling of practice with those that share similar learning goals was identified for a potential

focus. Also, the use reflective practice, how this is used to integrate and embed learning following initial training was also identified as a potential area of interest. How these concepts have been interpreted into initial programme theories is described below.

3.9 Initial stakeholder consultation

3.9.1 Introduction

Alongside literature reviews, stakeholder consultations can be used to identify initial programme theory (Craig and Wong, 2013). This process has been described by Booth et al (2018) in reference to realist review methodology, identifying that when stakeholders including commissioners, professionals or the public discuss their ideas about a particular system, then programme theories are generated. Griffiths et al (2022) describe their experience of developing initial programme theories in their realist evaluation of a support worker based programme for people with dementia (Griffiths *et al.*, 2022a). They interviewed people with dementia, their carers and field experts, conducted focus groups with support workers and met with PPI groups. These were then analysed and synthesised iteratively to develop their programme theories. They found that through their interactions with different groups they were able to explore a complex intervention in a way that led to significant insights and a more comprehensive programme theory.

As discussed in [Chapter 2](#) of this thesis, a stakeholder group was recruited for the duration of the PhD, to discuss the findings of each study alongside their collective knowledge and experience to aid the development and refinement of the programme theories, and to improve the rigour and relevance of the results.

3.9.1.1 Aims of the consultation

The aim of the stakeholder group at this stage was to consider the findings from the scoping literature review alongside their knowledge and experience to assist in the development of the initial programme theories.

3.9.2 Methods

3.9.2.1 Members

Pawson and Tilley (2014) identify that in a realist evaluation it is important to get the perspectives from the right people. This doesn't necessarily mean consulting large numbers of stakeholders but speaking to the right people to gain enough insights to develop a well-rounded programme theory. There are different types of people that can inform the evaluation about the programme, subjects are the people going through the programme, practitioners, are those who put the programme into practice and evaluators, those that seek to understand programmes (Pawson and Tilley, 2014). As the main participants within this evaluation were the therapists (the subjects of the training programme) the stakeholders recruited were a mix of practitioners and evaluators, that are working on this or similar research trials. Those that were subjects within the programme (the therapist), may have more understanding of the mechanisms at play, but due to their personal involvement, have less insight into the contexts and outcomes (Pawson and Tilley, 2014; Petrova *et al.*, 2021), therefore involving stakeholders (practitioners and evaluators) at this stage and throughout the process helped to develop the programme theories from a broader perspective.

Potential stakeholders were identified through local research networks and those involved in the PrAISED trial.

- RCT principal investigators (n=2) (evaluators)
- Service managers (n=2) (evaluators)
- Physiotherapists with clinical and research experience (n=2) (practitioners)
- Occupational therapists with clinical and research experience (n=2) (practitioners)
- Patient and public representatives with research experience (PPI) (n=1) (evaluators)
- Researchers with experience of realist methodology (n=2) (evaluators)

3.9.2.2 Methods

The meetings were held, either individually or in small groups. Each meeting began with an introduction to the research study, establishing the stakeholder's perspective and feedback from the scoping review. The discussion continued with the stakeholder's thoughts about social learning and reflection as theories for understanding how therapists learn about interventions and put them into practice. Other ideas and barriers and facilitators to the learning process were also considered. A brief topic guide was developed for this process ([Appendix 5](#)).

Reflective notes were written, both during the meeting and with a reflective log following the meeting. These notes and logs were then explored and themes were identified using content analysis to group the texts into common themes (Denscombe, 2021). This method is appropriate for combining textual data into a descriptive account that does not require interpretation (Vaismoradi, Turunen and Bondas, 2013).

3.9.3 Themes

The themes from the stakeholder meetings were grouped into categories based on potential contexts, potential mechanisms, and potential outcomes.

3.9.3.1 Potential contexts

The discussions around contexts fell into three broad groups, individual contexts, team contexts and the training itself. Individual contexts referred to the therapists' individual circumstances, team contexts included the setting (geographical, social and cultural) within which the therapy was based and the way the teams operated. The context of the training itself was considered a context, for example where and when the training was held and with whom the individual therapists attended the training.

Several conversations discussed the therapists' individual preferences and experiences. Receiving information in the way therapists preferred to learn was considered important, for example some therapists may prefer lots of theory and others require an exploration of typical cases to help them understand the material.

One stakeholder wondered if there is a generational difference in the needs of the therapists in terms of the how they like to learn and the support they need once practising.

It was identified that the therapists all bring a unique set of personal and professional experiences, knowledge, values, and interests that may affect their understanding and processing of the information from training. Consideration for the therapists' motivations to deliver the research intervention may also be an important context as those who have chosen to take part may come with a different perspective to someone who has been asked to take part by their manager.

Another element that was discussed and could be a potential context is that of confidence and competence. This interaction could be quite complex as some therapists may not be confident but very competent or conversely less competent but very confident. This may affect the way the therapist engages with any training and mentoring programme and ultimately how the intervention is delivered to the participants. One stakeholder wondered if therapists who lack confidence find an adaptable intervention more difficult.

Data from the stakeholder discussions indicated that the team within which the therapists work may influence the way the therapists interact with a training programme. Leadership was seen as important, and teams may be influenced depending on if they are led from therapy based or research based organisational structure. It was considered during one conversation that within teams there may be power dynamics and other influences that may be present that could become barriers to learning.

Finally, it was considered that how the training is delivered may be important. Whether the initial training is delivered in a large or small group for example or whether the therapist received training alongside fellow team members.

3.9.3.2 Potential mechanisms

Stakeholders discussed potential ways in which therapists may utilise reflective learning. One stakeholder suggested that in talking through cases, clinical reasoning concepts may be better understood. Another reported that they learn best through

having time to practice the theory they have been taught and then reflecting on this at a later date.

Mentorship was discussed in a number of conversations. It was suggested that relationships are a key part of successful mentorship, and this may come about through mutual trust between members of the mentoring group and the facilitator. Other discussions focused on the nature of peer support and how this could lead to deeper reflective learning than when therapists reflect individually. Reassurance was another facet proposed by one stakeholder, that hearing the experiences of peers and having a facilitator present might lead to feelings of reassurance, which in turn might lead to confidence.

The experience of the therapists delivering the intervention may also be important. In one conversation it was discussed whether the therapists need to build up their experience through completing a number of cases. This increase in experience might then lead to an increase in the quality of their reflection and an increase into their ability to apply and adapt the intervention. Another discussion identified that the first couple of cases the therapist completes may influence how they feel about the intervention. If the first couple of cases are successful this could lead to the therapist feeling positive about the intervention, however, if the first couple of cases are more challenging, this might lead the therapist to be less invested in the intervention and become disheartened.

Social learning was also discussed with stakeholders. Having the opportunity to discuss cases with peers was seen as leading to a better understanding of how to implement theory into practice. Mentoring opportunities for each team was seen as a good opportunity to problem solve and consolidate learning.

The concept of engagement in training was considered in a couple of conversations. It was identified that being present during training would not necessarily lead to the therapist being able to deliver the intervention. Therapists had to engage with the training material and opportunities presented to them, but it was unclear in discussions what this involved and whether it was different for different individuals.

Finally, a mechanism based on the concept of surveillance was discussed; several stakeholders discussed whether the ongoing elements of the training programme

would lead the therapists to feel that they were being monitored. If the therapists felt they were under surveillance, this might lead them to be more careful in how they deliver the intervention and may prevent the intervention from becoming diluted over time.

3.9.3.3 Potential outcomes

It was discussed that the main outcomes from a potential training programme were that the intervention was delivered as intended. It was also discussed that maintaining the quality of delivery over the length of a research study might be a more specific outcome. A further consideration was that delivery could be improved overtime to meet more complex cases.

There may be some further outcomes the different contexts considered above. For the individual therapists, they may feel more confident and competent in their practice within the trial and in their usual area of professional practice. There may be outcomes from a therapy team level around development of team relationships and working practices. There may also be outcomes for the training programme in terms of learning how it could be delivered more effectively to meet the needs of the therapists.

3.9.4 Conclusions

There were many concepts that were identified through the stakeholder meetings, that were broken down into potential contexts, mechanism and outcomes. The stakeholder discussions were able to build on the concepts identified within the scoping review, providing different contexts which may be more conducive or unfavourable to both reflective learning or social learning type mechanisms. Other potential mechanisms were also generated such as relationships built through mentorship leading to trust and reassurance. These potential constructs were utilised to generate initial programme theories for the next phase of the PhD and are illustrated in [Figure 11](#).

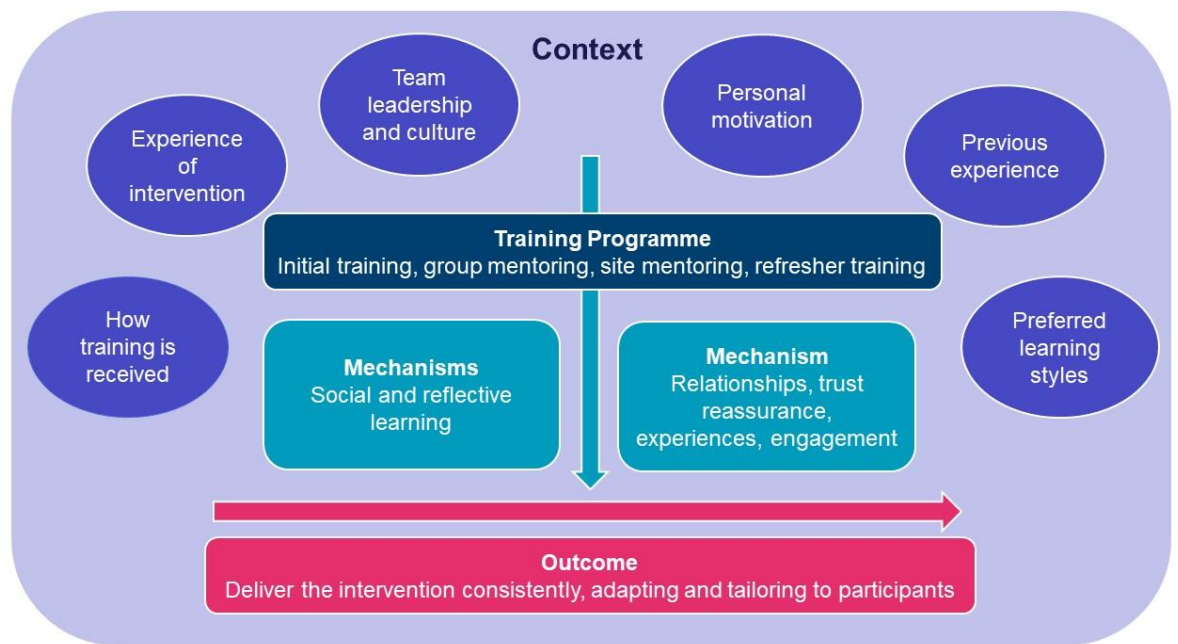


Figure 11: Summary of themes from initial stakeholder consultation

3.10 Initial programme theories

Utilising the theories identified in the scoping literature review and the concepts identified in the stakeholder consultation a list of initial programme theories (IPTs) were identified. Machal et al (2018) suggest that there are three ways of generating programme theories for further evaluation; stakeholder consultation, exploratory research or a realist review. For this PhD a scoping review was chosen as opposed to a realist review, the rationale for this being laid out above, and the stakeholder consultation used to build on these findings. The second stage in this PhD in [Chapter 4](#), is going to be an exploratory piece of research to further expand and refine the programme theories before they are tested in the final research phase, [Chapter 5](#).

The tables below lists the seven initial programme theories identified ([Table 4](#), [Table 5](#), [Table 6](#), [Table 7](#), [Table 8](#) and [Table 9](#)). The programme theories have been divided into categories based around the elements of the training programme and the level at which they action. Therefore, there are programme theories relating to the training programme overall and these have been separated into individual, site teams and across all sites, levels of action. There are also programme theories for the initial training workshop, the on-site mentoring, the monthly remote all sites group mentoring and the refresher workshop. Only the individual level has been specified

for these separate training programme elements, to reduce duplication, as the programme theories identified for the other levels were already contained within the overall programme theories.

The programme theories have been specified by considering the contexts, mechanisms and outcomes that are at play for each of the training programme elements, as well as an ‘if...then...because’ statement to bring the concepts together. This approach is advocated by Westhorp (2014) as a way to define basic programme theories. With ‘if’ denoting the context, ‘then’ the outcome and ‘because’ the mechanism. **If** this is the context, **then** this outcome occurs, **because** this mechanism has been triggered.

To enhance the rigour of this process the initial programme theories were presented to the stakeholders with realist experience above findings. The theories were refined as a group to improve the descriptive quality of the terms used and to ensure the concepts were articulated accurately.

Table 4: Initial programme theory: Use of reflective practice and social learning

Programme Element: Overall Training Programme		
Level of Action: Individual		
Context: Attend and engage in multiple elements of the training programme Previous experience Hours of intervention delivery Personal causation	Mechanism: Social learning Reflective practice	Outcome: Confident, competent and consistent in delivery of the intervention
Potential Explanatory IPT: If the therapists attend and engage in multiple elements of the training programme (C), then they will be confident, competent and consistent in the delivery of the intervention (O), because they will assimilate the learning into the intervention delivery through reflective practice and social learning with the learning community (M). Other contexts such as previous experience, hours of intervention delivery, personal causation (C), may affect how the therapists engage with the training programme (M) and therefore how they deliver the intervention (O).		

Table 5: Initial programme theories: Leadership, team culture and team work

Programme Element: Overall Training Programme		
Level of Action: Site Teams		
Context: Leadership (experience, involvement, confidence, values and beliefs) Team culture (experience, communication, confidence, continuity, values and beliefs) attend and engage in multiple elements of the training programme with site team members	Mechanism: Increased attendance and engagement in the training programme Development of relationships with team members	Outcome: Confident, competent and consistent in delivery of the intervention Supportive training environment Effective team work
Potential Explanatory IPT: If the site team has suitable leadership and team culture (C), then the site team will be confident, competent and consistent in the delivery of the intervention (O), because the individual therapists will be more likely to attend and engage in the training programme (M). If the therapists attend and engage in multiple elements of the training programme with other team members (C), then they will experience a supportive training environment and deliver effective team work (O), because they will develop relationships with team members (M).		

Table 6: Initial programme theory: Cross site relationships

Programme Element: Overall Training Programme		
Level of Action: Across all sites		
Context: Attend and engage in multiple elements of the training programme with members of other site teams	Mechanism: Development of relationships with other site team members and training staff.	Outcome: Supportive training environment Effective cross site working
Potential Explanatory IPT: If the therapists attend and engage in multiple elements of the training programme with members of other site teams (C), then they will experience a supportive training environment and deliver effective cross site working (O), because they will develop relationships with other site team members and training staff (M).		

Table 7: Initial programme theory: Initial training workshop

Programme Element: Initial Training Workshop		
<p>Context:</p> <p>Attend and engage in the initial training workshop</p> <p>Number of therapists in the training</p>	<p>Mechanism:</p> <p>Understand the study materials</p> <p>Invest in the intervention</p> <p>Social learning (discovery, shared ideas and practice)</p> <p>Reflective practice (exploring how the intervention can be put into practice through relating to previous experiences)</p>	<p>Outcome:</p> <p>Demonstrate a level of understanding through the post training questionnaire</p> <p>Deliver the intervention with fidelity</p>
<p>Potential Explanatory IPT:</p> <p>If the therapist engages in the initial training workshop (C), then they will demonstrate a level of understanding through the post training questionnaire and deliver the intervention with fidelity (O) because they have understood the study materials, are invested in the intervention and have learnt through social learning and reflective practice (M).</p> <p>If the therapists attend the training with a certain number of other therapists (C), then they will have a greater understanding (O) because they have had the opportunity to engage in more social learning (M).</p>		

Table 8: Initial programme theory: Reflection and surveillance

Programme Element: On-site group mentoring/		
<p>Context:</p> <p>Attend and engage in the on site mentoring</p>	<p>Mechanism:</p> <p>Time to reflect on the intervention concepts and how they relate to their cases</p> <p>A sense of accountability to the intervention programme as they feel they are under surveillance</p>	<p>Outcome:</p> <p>Increased confidence and competence</p> <p>Enable delivery of the intervention with a greater level of fidelity</p>
<p>Potential Explanatory IPT:</p> <p>If the therapists attend and engage in the on site mentoring (C), then this would increase their competence and confidence, and enable delivery of the intervention with greater fidelity (O), because they will have time to reflect on the interventions concepts and how they reflect on their cases and because they will feel a sense of accountability as the feel they are under surveillance (M).</p>		

Table 9: Initial programme theory: Reflection and surveillance

Programme Element: On site group mentoring and monthly remote all sites group mentoring		
Context: Attend and engage in the ongoing monthly group mentoring	Mechanism: Time to reflect on the intervention concepts and how they relate to their cases A sense of accountability to the intervention programme as they feel they are under surveillance	Outcome: Increased confidence and competence Enable delivery of the intervention with a greater level of fidelity
Potential Explanatory IPT: If the PrAISED therapists are engaged in the ongoing monthly group mentoring (C), then this would increase their competence and confidence and enable them to deliver the intervention with a greater level of fidelity (O) because they will have time to reflect on the interventions concepts and how they impact on their cases and because they will feel a sense of accountability as the feel they are under surveillance (M).		

3.11 Chapter summary

The aim of this chapter was to demonstrate how the initial programme theories were developed through a scoping literature review and an initial stakeholder consultation. The scoping review identified seven studies which utilised reflective or social learning theories. These theories were then discussed with stakeholders to expand on potential contexts, mechanisms and outcomes that might be at play during the training programme under evaluation. Themes from the stakeholder consultation were then utilised to develop seven initial programme theories that will be refined in [chapter 4](#), which presents the next stage of the realist evaluation and then finalised in [chapter 5](#), the final step of the evaluation.

Chapter 4: Refinement of programme theories: Mixed methods exploratory interview and video study

4.1 Chapter overview

In the previous chapter, a scoping review and stakeholder consultation were conducted to identify the initial programme theories ([Chapter 3](#)). This chapter will build on this by completing a mixed methods study utilising exploratory interviews and video recordings to gather information about the therapists' experience and practice of delivering the intervention.

The use of an exploratory study is advocated for the use of developing programme theories in realist evaluations (Marchal, Kegels and Van Belle, 2018). Using a mixed methods design, therapists who had been delivering the intervention for six months, were interviewed on their experiences of utilising the intervention and they were also video recorded delivering an intervention session.

4.1.1 Aims of the study

The aim of this study was to explore therapists' experience of completing training on a complex intervention and identify what aspects of the training programme were viewed the most effective.

4.1.2 Study objectives

- To interview therapists who had completed the training.
- To video record these therapists delivering the intervention.
- To identify what aspects of the training were the most effective and why.
- To determine to what extent the training programme enabled the therapists to carry out the intervention with fidelity.
- To support or refute the programme theories identify in [Chapter 3](#) and develop them into refined programme theories.

4.2 Methods

This study utilised a mixed methods convergent design (Creswell and Plan Clark 2018) to allow the qualitative and quantitative data to be collected concurrently and results combined at the analysis stage. Realist philosophy, with its emphasis on ontology, is well suited to mixed methods work (Maxwell and Mitappolli 2010), with realist evaluators utilising the best methods suitable for exploring the research question (Hewitt et al 2012). Mukumbang (2021) states that quantitative research can be helpful to identify and organise contexts or outcomes, whereas qualitative research can generate more in depth data to explore and narrate the phenomena (Maltby et al 2014).

To identify whether the training and support programme enabled the core components of the intervention to be delivered by the therapists, quantitative data was collected. To identify what aspects of the training programme the therapists identified as effective and begin to identify the processes involved, qualitative data was collected.

At this point, the therapists had received a number of elements from the training programme. An initial training workshop which was held face to face. Most of the therapists took part in this as a group, however one to one or small group sessions were arranged for those unable to attend the main group sessions. Following the initial training workshop a post training assessment was administered, in which therapists had to obtain 80% to deliver the intervention. On-site group mentoring was carried out face to face with all sites in the first couple of months of intervention delivery. This was to ensure therapists understood how they were to implement the intervention and to problem solve any issues that had arisen. The therapists had also had multiple opportunities to join virtual monthly group mentoring sessions which were an opportunity to discuss any challenges, share success and problem solve any difficulties. The refresher workshop had not taken place prior to this study. The term training programme is used to refer to the overall programme of training and mentoring, and the individual components are named accordingly.

4.2.1 Participants

The participants, the therapists, were recruited from the PRAISED trial sites and a pragmatic sample of 14 therapists from across the initial four sites were recruited. Purposive, pragmatic sampling (Mays and Pope, 2020) was utilised to ensure that the therapists were from a mix of professional backgrounds across the sites. These were the first 14 therapists that met the inclusion theory at the time of the study, however at this time there were 35 therapists working on the trial. Figure demonstrates the timeline of PrAISED therapist recruitment

4.2.1.1 Inclusion Criteria

- Therapists who had completed the initial training workshop.
- Therapists with six months experience delivering the intervention to ensure they had the opportunity to implement the intervention to a range of cases and to attend the ongoing training and mentoring activities.
- Therapists willing to participate in both the interview and video phase of the study.

4.2.2 Ethical Approval

The data collected for this mixed methods study were collected as part of the PRAISED trial and were covered by the ethical approval granted for the PrAISED study, IRAS PROJECT ID 236099, REC Reference 18/YH/0059.

4.2.3 Data collection methods

4.2.3.1 Process Information

Therapist demographics were collected before the interview; this included data on work experience and involvement with the PRAISED trial ([Appendix 6](#)). Training records were kept for all therapists at each site and collected by LH.

4.2.3.2 Qualitative Data

Semi structured interviews were used to collect qualitative data as these are a good format for exploring participants' understandings of a lived experience, providing

detail and complexity (Mason, 2018). The interview schedule ([Appendix 7](#)) was designed and piloted by LH. The interview schedule prompted discussion, and a flexible approach was used to respond to the participants in the most appropriate way and not discount any unanticipated responses (Parahoo, 2014). Interviews were digitally audio recorded and transcribed verbatim by a university approved transcriber.

4.2.3.3 Quantitative Data

The aim of the video data was to identify whether the training had led to the therapists delivering the intervention with fidelity, in other words, whether the therapists were delivering the intervention as intended. Treatment fidelity is a complex concept to measure, as it depends on a wide range of variables and for complex interventions, requires a degree of flexibility (Borelli 2012). Walton et al (2019) developed a method whereby the key components of an intervention are broken down into observable elements that can be checked off as being present, partially present or not met. Using this framework, a video observation checklist and coding guideline was developed ([Appendix 8](#)). The PrAISED therapy manual identified 14 core principles defining the intervention ([Box 2](#)). Since the intervention was to be delivered flexibly, it was not anticipated that each element would be demonstrated during each session.

1. Intensive (150 minutes of physical activity per week)
2. Focused on tailored physical activity
3. The task must be challenging
4. The tasks must be progressive
5. The tasks must promote or improve independence
6. Supporting activities of daily living
7. Supporting dual tasking
8. Accessing the environment
9. Embracing positive risk taking
10. Using motivational theories
11. Assisting in habit formation
12. Using tapering to promote self-management
13. Promoting long term engagement
14. Participant specific goal setting

Box 2: PrAISED Core Principles

The PrAISED trial protocol stated that the intervention would be delivered for up to 52 weeks for each case. The number of weeks the case had been involved in the trial was identified as this was relevant in determining whether the therapists were delivering the right element of the intervention. For example, therapists might be more likely to provide the tapering and long-term engagement elements of the intervention to cases who had been in the trial for more than 26 weeks. The recordings covered the intervention session in its entirety, which lasted between 60 to 90 minutes. The videos were transcribed by a university approved professional transcriber.

4.2.4 Data analysis plan

4.2.4.1 *Process Information*

Therapist demographics, numbers of therapists trained, and hours spent in training were analysed using descriptive statistics.

4.2.4.2 *Qualitative Data*

Interview data were analysed using realist analysis (Manzano, 2016; Gilmore *et al.*, 2019). This utilised an a priori set of codes based on the mechanisms from the initial programme theories and also allowed for new codes to be identified. These codes were then grouped in the form of context, mechanism and outcome configuration (CMOCs) themes. Excerpts from the interviews were identified as evidence for the CMOC themes, this could take the form of short statements relating to an element of the CMOC, a paragraph relating to the whole CMOC or multiple components of a CMOC. These were presented in tables that presented the CMOC themes alongside details of the evidence to support it. A stakeholder (VB) took part in this process to increase the rigour of identifying CMOC themes.

4.2.4.3 *Quantitative Data*

All videos were watched by LH. The observation checklist was completed for each video. The data were presented using descriptive statistics. Through discussion with the training team, it was expected that at least 10 of the core principles should be

observable within each of the sessions. Therefore, if a therapist was observed as delivering at least 10 of the core components (fully or partially), they could be considered to be delivering it with fidelity. To increase the rigour of the data analysis a second coder from the stakeholder group with experience in training therapists to deliver research interventions (AC), coded 10% of the videos (Tong *et al.*, 2019).

If there was a clear observation of the core principle, this was considered 'Fully Met' (FM), if some elements of the principle were delivered but not all, this was designated as 'Partially Met' (PM). If the core principle was not present at all, this was recorded in one of three ways. If there was an opportunity for this to be delivered but this did not happen, it was considered to be a 'Missed Opportunity' (MO). There were times when it wouldn't be appropriate for a core component to be present, for example, you wouldn't expect a therapist to go through strategies for long term adherence during an initial assessment, in these instances this was allocated as 'Not Applicable' (N/A). Finally, there were times when there were no missed opportunities and no reason for the core component to be absent, in these instances 'Not Observed' (NO) was recorded.

4.2.5 Data synthesis plan

To synthesise the data from the qualitative and quantitative components, the findings were presented in a side-by-side comparison table (Creswell, 2018). This allowed for comparison across groups, for example whether there were any common threads or whether different qualitative themes were present across different groups. The findings were then compared with the initial programme theories identified in the previous chapter ([3.10](#)) to determine whether these programme theories could be supported, refuted or should be refined in light of the new findings.

4.3 Findings

The interviews were conducted between the 19th July 2019 to the 23rd September 2019, LH carried out seven and CDL conducted seven. The videos were recorded between the 20th June 2019 and 14th November 2019, LH conducted five with the

others recorded by other researchers (CB, RB, PP, JL). It had been planned to continue recruitment in the Spring of 2020, however, due to COVID 19 restrictions, recruitment was discontinued. In terms of the overall PrAISED study timeline, the recruitment of therapists from this study can be seen in [Figure 12](#).

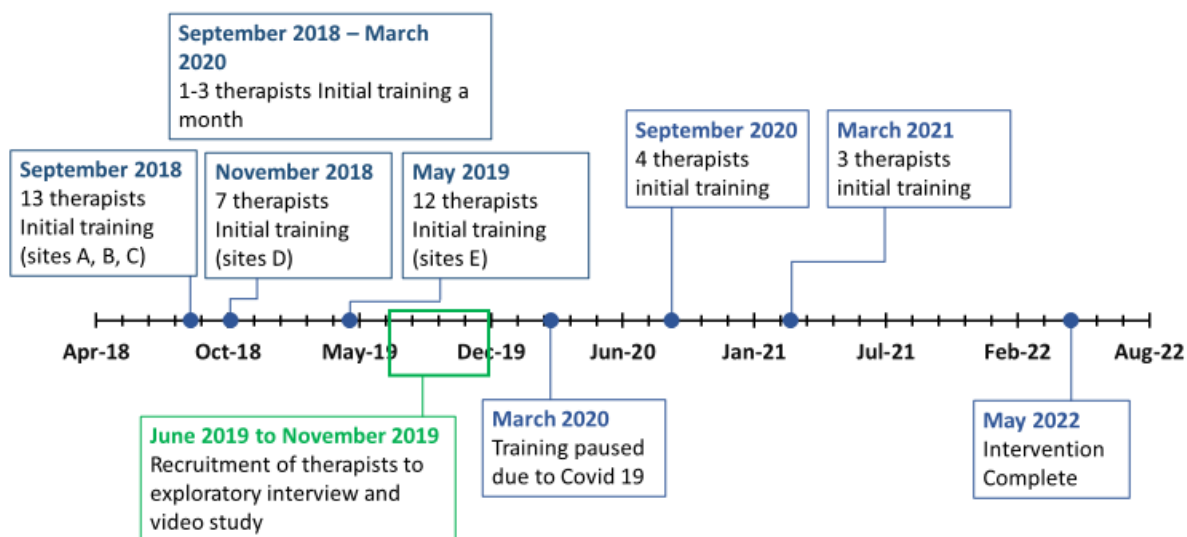


Figure 12: Position of therapist recruitment to exploratory interview and video study related to the PrAISED therapist training timeline

4.3.1 Process Information

Fourteen therapists took part, four from sites A and B, and three from sites C and D. It had been hoped to recruit five therapists from five sites, but it was not possible to recruit the remaining two therapists from sites C and D, or anyone from site E as the therapists had not been delivering the intervention for six months prior to the COVID 19 lockdown restrictions. All but two of the therapists (n=12) (86%) were female, the age range was between 20 and 59 years. See [Table 10](#) for further demographic details.

Table 10: Demographics and background on therapists recruited to the exploratory and video study

Therapist	Designation	Site	Gender	Ethnicity	Age Range	Time delivering PrAISED intervention	No of cases treated	Length of time in profession	Experience with people with dementia	Areas of clinical practice experience	Clinical setting experience
T1	OT	A	Female	White/ British	30-39 years	42 months (feasibility)	29	10-15 years	10-15 years	OAMH, OAPH, paeds	RHC, RC, SS, CH
T3	PT	A	Female	White/ British	40-49 years	12 months + feasibility	10	10-15 years	10-15 years	OAMH, OAPH, LD	AHC - MH, RC, LDC
T4	RSW	A	Female	White/ British	20-29 years	10 month	16	5-10 years	5-10 years	OAMH, OAPH	Domiciliary Care
T21	PT	A	Female	White/ British	40-49 years	10 months	16	20+ years	20+ years	OAMH, OAPH	AHC, RHC, RC, Outpts
T5	OT	B	Female	White/ British	50-59 years	12 months + feasibility	51	20+ years	20+ years	OAMH	CMHT
T6	PT	B	Male	Indian	40-49 years	10 month	20	15-20 years	5-10 years	OAMH	AHC - MH, RC
T7	RSW	B	Female	White/ British	50-59 years	36 months (feasibility)	25	1-5 years	20+ years	OAMH, OAPH	RHC, RC, CMHT
T8	RSW	B	Female	White/ Mixed Irish/ Asian	50-59 years	9 months	10	5-10 years	10-15 years	OAMH, OAPH, LD	AHC, RHC, RC, LDC
T12	OT	C	Female	White/ British	50-59 years	10 months	15	20+ years	10-15 years	OAMH, OAPH, AMH	AHC, RC
T13	RSW	C	Female	White/ British	20-29 years	10 months	9	1-5 years	5-10 years	OAMH	CMHT

Therapist	Designation	Site	Gender	Ethnicity	Age Range	Time delivering PrAISED intervention	No of cases treated	Length of time in profession	Experience with people with dementia	Areas of clinical practice experience	Clinical setting experience
T16	PT	C	Female	White/ British	30-39 years	7 months	27	10-15 years	10-15 years	OAPH	AHC - PH, RHC, RC, CH
T18	RSW	D	Male	White/ British	30-39 years	8 months	20	1-5 years	10-15 years	OAMH, OAPH, APH	ACH - PH, RC
T19	PT	D	Female	White/ Mixed/ Asian	20-29 years	8 months	16	1-5 years	1-5 years	OAPH	AHC - PH, RHC, RC
T20	PT	D	Female	White/ Mixed Chinese	40-49 years	8 months	20	10-15 years	5-10 years	OAPH	AHC - PH, RC

Abbreviations: Older Adults Mental Health (OAMH), Older Adults Physical Health (OAPH), Learning Distability (LD), Adult Physical Health (APH), Adult Mental Health (AMH), Paediatrics (Paeds)

Abbreviations: Rehabilitation Hospital Care (RHC), Rehabilitation Community (RC), Social Services (SS), Care Homes (CH), Community Mental Health Teams (CMHT), Acute Hospital Care - Mental Health (AHC - MH), Acute Hospital Care - Physical Health (ACH - PH), Acute Hospital Care Unspecified (AHC), Outpatients (Outpts)

There was a good mix of professions from each site with a PT, an OT and an RSW participating from all sites except site D where two PTs and an RSW participated. This was due to staff leaving and newly recruited staff had not been in place for six months prior to the COVID 19 lockdown restrictions. The therapists had a wide range of experience with 11/ 14 (79%) having experience with older adults' mental health services, all 14 had experience working in the community and 11/14 (79%) having experience in rehabilitation services. All but one RSW at site D had at least five years' experience working with people with dementia.

All the therapists in this study had provided the intervention to at least nine cases. Four therapists (29%) , two from each site A and B, had also provided the intervention for the feasibility study (Goldberg *et al.*, 2019), and therefore had more experience delivering a complex rehabilitation intervention for people with dementia as part of a research study.

In terms of engagement in the training and support programme, attendance was recorded for the initial training workshop, as well as group size, their post training assessment score, and the length of time from training to delivering the intervention. Attendance at the monthly remote group mentoring and the on-site group mentoring was also recorded prior to the interview date and is detailed in [Table 11](#).

Eight of the therapists (57%) received training as a multi-site group of 13 therapists, three (21%) attended as part of an on-site group of seven therapists, two (14%) had training individually and one therapist (7%) trained with one other person. All therapists (except one) took the post training evaluation and scored above 80% (only two therapists scored less than 90%). Eleven therapists (79%) experienced a delay of between one and three months from the date they completed the initial training to the time they started delivering the intervention. Three therapists (21%) delivered the intervention immediately after training.

Everyone received an on-site mentoring visit prior to their interview, with two therapists (14%) at site C having received two. The monthly remote group mentoring attendance varied greatly, four therapists (29%) did not attend at all, seven therapists (50%) attended between one to three sessions and three therapists (21%) attended six to seven sessions. It was noted that attendance was higher in the first few months

following the initial training workshop and all sites, except site D, attempted to ensure that one person from their site attended every session. As the therapists had been in the study for at least six months prior to their interview, they had the opportunity to attend at least six remote group mentoring sessions.

Table 11: Data detailing the training attended by the therapists prior to their recruitment to the exploratory interview and video study

Therapist	Number of therapists in initial training workshop	Trained with site team	Time from training to start of intervention delivery	Post training questionnaire score	Monthly remote group mentoring attendance	On-site group mentoring attendance
T1	2	No	Immediate	96%	3	1
T3	13	Yes	1 month	80%	0	1
T4	13	Yes	1 month	100%	0	1
T21	13	Yes	1 month	N/A	2	1
T5	13	Yes	1 month	92%	7	1
T6	13	Yes	1 month	92%	6	1
T7	13	Yes	1 month	96%	2	1
T8	1	No	Immediate	88%	0	1
T12	13	Yes	2 month	96%	6	2
T13	13	Yes	2 month	100%	2	2
T16	1	No	Immediate	96%	1	1
T18	7	Yes	3 month	96%	1	1
T19	7	Yes	3 month	96%	1	1
T20	7	Yes	3 month	100%	0	1

[Table 12](#) presents the information on the therapist provision at each of the four sites throughout the entire trial (from October 2018 to May 2022) and the training undertaken by the therapists at each site is reported in [Table 13](#). Site A had fourteen therapists trained (29%), Site B twelve therapists (25%), Site C nine therapists (18%) and Site D fourteen therapists (29%). The most therapists were trained at Site A and D, and they had the largest caseload followed by Site B having the 3rd largest caseload and Site C which had the smallest number of therapists and cases.

The organisation of the therapy teams varied per site. Site A and C were managed by a PT and OT respectively who were also Principal Investigators (PI) for their sites. They were also senior clinical managers with the organisations employing the therapists. Site B was managed by the experienced OT within the site therapy team. Site A, B and C regularly met as a team to discuss caseloads, clinical issues and therapy delivery. Site D began with an OT within the site therapy team taking the lead, however she left her post, and this role was passed onto a PT within the same team. Unfortunately, the site therapy team at Site D, were unable to continue delivering the intervention following the COVID 19 pandemic, and a new therapy team were identified. The new OT and PT shared responsibility for leading this team. Throughout the trial, Site D therapy team met on an ad hoc basis and more informally than the other three sites.

Table 12: Background information detailing the features of sites A, B, C and D

Site	Numbers of therapists overall	Number of OTs	Number of PTs	Number of RSWs	Numbers of therapists working at a time	Team management	Team Meetings	Number of participants
Site A	14 (29%)	4	4	6	6 to 8	PT manager/ Site PI	Yes	119 (35%)
Site B	12 (25%)	3	5	4	5 to 9	OT in team	Yes	75 (22%)
Site C	9 (18%)	2	2	5	4 to 6	OT manager/ Site PI	Yes	60 (18%)
Site D	14 (29%)	8	4	2	3 to 7	Changing structure	Informal	84 (25%)
Totals	49	17 (35%)	15 (31%)	17 (35%)				338

Table 13: Training data for sites A, B, C and D

Site	Multi-site large group initial training	One site large group initial training	One to one or small group initial training	Attendance at virtual group mentoring	Attendance at on site mentoring	Attendance at refresher training
Site A	5 (36%)	0	9 (64%)	38/42 (90%)	5/5 (100%)	5/9 (56%)
Site B	4 (33%)	0	8 (67%)	21/36 (58%)	4/5 (80%)	6/9 (67%)
Site C	3 (33%)	0	6 (67%)	30/39 (78%)	4/4 (100%)	5/7 (71%)
Site D	1 (7%)	7 (50%)	6 (43%)	9/40 (22%)	5/7 (71%)	3/6 (50%)
Totals	13 (27%)	7 (14%)	29 (59%)	98/157 (62%)	22/25 (88%)	19/31 (61%)

4.3.2 Qualitative data

The qualitative data were analysed using a coding framework that focused on mechanisms that were proposed in the initial programme theories as identified in the previous chapter (3.10). [Table 14](#) presents the coding framework and demonstrates codes that were proposed in the a priori framework and those that were identified during the analysis process. The table also identifies how many references were found in the interviews for each code and which therapists contributed to the references at each code. Some references were coded under more than one code.

Table 14: Coding framework of exploratory interview and video study

Name	Description	Number of references	Therapists that contributed to the code
Access to training	Being able to access training	15	T1, T3, T4, T6, T7, T12, T13, T16, T18, T19, T20, T21
Accountability	Whether therapists felt the training was to hold them to account for how they were delivering the intervention	1	T20
Adaptation of training*	Adapting training to suit the needs of the learners	1	T12
Confidence in delivery	Confidence in ability to deliver the intervention	27	T1, T4, T6, T7, T8, T12, T13, T18, T19, T20, T21
Confidence in intervention*	Confidence that the intervention has value	1	T7
Cross site relationships	Relationships between therapists at different sites	7	T1, T5, T6, T7, T13, T19
Manual*	Reference to the training manual	6	T1, T4, T16, T18, T19
Overwhelmed*	References to the therapists becoming overwhelmed	32	T1, T3, T4, T5, T6, T8, T12, T13, T18, T19, T20, T21
Personal causation	Therapist's motivation for carrying out the role	26	T1, T3, T4, T5, T6, T12, T13, T16, T18, T19, T20, T21
Reflection	How therapists reflect on the intervention, in relation to training or comparing to past work experiences	13	T1, T13, T5, T8
Relationships with trainers	Therapist's relationships with the training staff	8	T1, T3, T6, T12, T13
Revisit concepts*	Revisiting components of PrAISED in ongoing training	5	T1, T8, T13, T18, T19
Social learning	Concepts such as group exercises within training, learning as a	5	T4, T5, T7, T12, T19

Name	Description	Number of references	Therapists that contributed to the code
	team or reflecting on cases as a team		
Supervision	The use of supervision to enhance their delivery of the intervention	13	T1, T3, T4, T6, T8, T12, T20
Team work	How the therapy team work together to deliver the intervention	35	T1, T3, T4, T5, T6, T12, T13, T16, T19, T20, T21
Training environment*	References to the training environment and the impact on their learning	2	T12, T8

* Denotes code that was identified during the coding process.

Following the initial coding, the data collected was sorted into CMOC themes as they related to the different programme theories. As the programme theories were originally written in terms of the programme architecture (the Training Programme, Initial Training Workshop, On-Site Group Mentoring, Monthly Remote Group Mentoring), the CMOC themes were presented into these categories, depending on the context that the therapists were reporting on at that point in the interview.

Tables 15 -18 present the CMOC themes for each aspect of the programme architecture ([Table 15](#), [Table 16](#), [Table 17](#), [Table 18](#)). Examples of the quotations that supported these themes are presented. This procedure was completed alongside a stakeholder with experience of realist methodology and training therapists for research trials to increase the rigour of the process. Following synthesis with the quantitative data, the initial programme theories were reviewed alongside the new potential CMOCs generated to identify what aspects of our programme theory were supported from this study and what needed further exploration in the realist interviews in the next chapter ([Chapter 5](#)).

4.3.2.1 Training programme

Five CMOC themes were identified under the concept of the training programme as a whole, ([Table 15](#)). More detailed tables can be found in [Appendix 9](#).

Table 15: Findings relating to the programme of training and support

Theme	Context	Mechanism	Outcome
Multiple opportunities for support	Challenges arise due to the complexity of the intervention and nature of the participant group	Multiple opportunities for support (resources) and therapist feel supported (reasoning)	Confidently deliver intervention as intended
Use of the manual	Uncertainty about the intervention or particular participants	Refer to manual to refresh knowledge (independently access the information) (resource)	Therapists can find the information and adapt the intervention
Consolidation Of knowledge	Return to training following delivery of the intervention	The opportunity to reflect on delivering the intervention and 'check' they are delivering it correctly (resource), therapist is reassured (reasoning)	Consolidate their knowledge and keep fidelity of the intervention
Anxiety about the research process	Therapist uncertain about research procedures and expectations	Therapists feel responsible for the success of the study and under pressure to not make a mistake (reasoning)	The therapist feels anxious and overwhelmed and confidence is reduced
Unclear instructions about resources	The therapists receive resources without enough instruction or support from the training team	they are unclear about whether they are meeting expectations (reasoning)	Their confidence is reduced

4.3.2.1.1 Multiple opportunities for support

A number of therapists discussed the different opportunities for support provided within the training programme. This was seen as a positive as they felt able to gain support and reassurance, and ensured the intervention was delivered with fidelity.

'I think because each month you can have experienced such different things compared to any other month. It's just the nature of the participant group

that we work with, isn't it? And because we're setting personalised programmes, we're not just doing a... it's really nice that we've got those teleconferences, it's really nice that we've got you on email, it's really nice that every now and then, like when we asked if you could pop in and see us, that you came. That's really good, because we want to make sure that we're delivering the intervention that you've got in your mind' (T13)

This was particularly useful as some therapists found accessing one form of support, for example the monthly remote group mentoring, did not fit into their work schedule.

'From Nottingham, the support is there. We had a problem the other day and I just called them up straightaway and they're very good at responding.' (T20)

4.3.2.1.2 Use of the manual

Therapists found the manual helpful to go back to when they had uncertainties about delivering the intervention, such as how to recommend exercises.

'What sort of things might you look up in the manual?' (R2)

'So the exercises is one of them that I do actually rely on, do you know, the levels, and then how to progress it on, and the different kind of dual-tasking elements.' (T4)

It was also found to be helpful if the therapists needed to adapt the intervention to suit more challenging participants for example those that were poorly motivated.

'...even now, referring back to the manual and stuff as well, to the folder just to refresh.' (T18)

'Do you find it helpful to have it there?' (R2)

'Yeah just to go through the motivational side of things and stuff just to keep refreshed, because obviously everyone is different so you can't just keep using the same strategy.' (T18)

4.3.2.1.3 Consolidation of knowledge

One therapist described how she felt she was able to consolidate her learning. She described having time to put learning into practise, reflect on how this is working and then return to training to strengthen her understanding.

'I think that with any training. When you do a block of it you almost want to then come back when you've had time to reflect on it don't you, and do a bit more and consolidate it in your head.' (T1)

4.3.2.1.4 Anxiety about the research process

A number of the therapists felt particularly anxious about delivering an intervention as part of a research trial. They reported that the language and procedures were unfamiliar, and this took time for them to be comfortable with. One therapist stated she felt under pressure to deliver the intervention accurately and that this felt like a burden.

'I felt very much, I felt a big responsibility for having to get it right because it's research and because this is other people's lives and you're wanting to make a difference. So I felt a lot of the burden was on us initially.' (T20)

4.3.2.1.5 Unclear instructions about resources

At times therapists found that they were uncertain about how to use the resources they were given. This created feelings of anxiety about whether they were meeting the expectations of the training team and whether they were delivering the intervention correctly.

'I think it all came through in lots of spreadsheets and stuff, but to be honest when the spreadsheet comes through like that, you might look at it and just go urgh because it's a bit of a turn off.' (T13)

4.3.2.2 Initial training workshop

Six CMOC themes were identified from the interview data relating to the initial training workshops, see [Table 16](#).

Table 16: Findings relating to the Initial training workshop

Theme	Context	Mechanism	Outcome
Cross professional role working	The intervention has been designed to be delivered by multi-professionals (OTs, PTs, and RSWs) and the training does not discriminate between professions.	There is not enough detail in the training or time for practice (resource)	Therapists will maintain the boundaries of their professional role rather than delivering an intervention across professional boundaries
Cross Site Relationships	Therapists from different sites attend the same initial training workshop	they can share ideas and experiences (social learning) (resource)	The therapists can learn from each other's experiences
Feeling overwhelmed	There is a lot of information in the training, manual or a lot of documentation	The therapist feels uncertain and overwhelmed (reasoning)	The therapist may lose confidence when delivering the intervention
Training alongside site team members	Therapists train alongside site team members	Therapists start to get to know colleagues and how they like to work (reasoning)	Begin to establish effective working relationships
Research Processes	Lack of information within the initial training about establishing site procedures for research and service delivery when sites are being set up	Therapists feel frustrated and under prepared (reasoning)	There may be initial difficulties implementing the intervention
Therapist Experience	Experienced therapist is being trained in a new intervention	They can use their past experience to reflect on using the intervention during the training (reasoning)	They can more effectively engage with the training

4.3.2.2.1 Cross professional role working

At times during the initial training workshops, the therapists reported that some of the training material, while it was a good review of best practice for their profession, wasn't necessarily needed. However, they did not feel there was enough detail or practice regarding interventions that were usually delivered by a different professional for them to feel confident working across professional boundaries.

'So I guess it's hard because it was for both physios, OTs and support workers. So it is hard to capture what everyone needs. So it was a good reminder of Tinetti, Berg and strength, but for me that was something I probably could have skipped. But I really wanted to know more about cognition and motivation and prompting' (T19)

'Yeah, it's more that risk assessment side I think and also probably some of the strategies for memory or those things, like how do you facilitate somebody to plan what they're going to do, because we do a lot less of that I think in our training as physios, so I think that's where there could be more done to support certainly physios.' (T21).

4.3.2.2.2 Cross site relationships

Depending on how the initial training workshop was received by the therapists, for example, in a large multi-site group or on a one-to-one basis, it provided an opportunity to share ways of working and ideas from different sites.

'But it's good because everybody's together and you can throw ideas about, you know, in that sense.' (T7)

4.3.2.2.3 Feeling overwhelmed

Some therapists reported feeling overwhelmed following the initial training workshops. They reported feeling uncertain and needing to refer to the manual and training material following the workshop.

So we had the training but I think because there's so much information I came back from that a couple days later and went over everything again just to

refresh because almost like information overload; even now, referring back to the manual and stuff as well, to the folder just to refresh. (T18)

4.3.2.2.4 Training alongside site team members

The opportunity to meet other members of the site team during the initial training workshops was seen as beneficial. This allowed the teams to start building working relationships that would help them work as a team when delivering the intervention.

‘Did you feel it was OK training alongside the OTs and the physios?’ (R2)

‘Yeah. Because I got to meet them before we actually started the job as well. So obviously even though we were training and when it was breaks and things like I got a chance to meet them and got to know what they do. I think A had done previous PrAISED before so she told, like gave us a bit of a heads up if you know what I mean. So yeah I thought it worked.’ (T4)

4.3.2.2.5 Research processes

As many of the therapists had previously worked in clinical settings where procedures for sharing information, documentation and communication were already established, there was some frustration that this wasn't covered within the training.

‘I think on the ground delivery of it, I think because it's run at different sites, I know going straight from the training then to working in Lincoln we hadn't really thought about some of the logistics of where we were going to store information, how we were going to share information, the documentation side of it and I think there was felt a bit of frustration that that could have been covered at the training.’ (T21)

4.3.2.2.6 Therapist experience

One therapist described how she was able to utilise her previous experience to engage more meaningfully with the training.

'I've just been involved in another research study that had the same parameters on the MoCA [Montreal Cognitive Assessment] Score as PrAISED, and we actually had some people in the group that were actually quite cognitively struggling. And I was imagining my participants from that and how they would be in PrAISED' (T13)

4.3.2.3 On-site group mentoring

There was limited discussion regarding the onsite group mentoring sessions within the interviews, however, one therapist reflected on how the training team responded when their site team identified an area of difficulty, see [Table 17](#).

Table 17: Findings relating to the on-site group mentoring

Theme	Context	Mechanism	Outcome
Responsiveness of the training team	The site identifies a learning need, communicate that to the training team and participate in a face to face mentoring session	The training team are adaptable, responsive and timely and the therapists remain motivated	Learning needs are met and there is a positive learning environment

4.3.2.3.1 Responsiveness of the training team

The ability of the training team to adapt to the needs of their particular site was productive.

‘The fact that we identified a learning need the other day as a team and you guys as therapists came out earlier this week, that was really positive. I think that was a really good learning environment that we had. We learnt an awful lot more. So I think that’s been really good.’ (T12)

4.3.2.4 Monthly remote group mentoring

There were five main CMOC themes that could be identified regarding the monthly remote group mentoring sessions, see [Table 18](#).

Table 18: Findings related to the monthly remote group mentoring

Theme	Context	Mechanism	Outcome
Time constraints	Time constraints on the therapists (days of work, therapy visits)	Therapist can not prioritise the group mentoring	The therapist will not access the monthly group mentoring
Convenience of virtual meetings	Monthly group mentoring is virtual (telephone or video call)	It is more time efficient	More therapists will be able to attend
Cross site attendance	There is attendance from therapists across different sites	They can compare what is happening at different sites, can reflect on similar situations, challenges and solutions and feel reassured	Therapists can share best practice and learning
Comparing selves negatively with other sites	Therapists from other sites are doing something different	The therapist questions what they are doing (comparison, reflection) and feel uncertain or incompetent	They feel overwhelmed
Support from outside of the site therapy team	Lack of opportunities for support in the site team	Multiple opportunities for support from the training team and other sites (resource) and the therapist feels supported (reasoning)	Therapist felt supported

4.3.2.4.1 Time constraints

Although seen as helpful, the therapists found that prioritising the monthly remote group mentoring sessions around, other roles and responsibilities was problematic. Many of the therapists only worked on research project part time on set days a week.

'I think that the teleconferences [monthly remote group mentoring] are useful. I've only been to one because of time, doing other jobs.' (T21)

Other therapists found it difficult to attend because their role on the research trial meant their time was spent out in the community visiting participants.

'Do you find the teleconferences [monthly remote group mentoring] helpful?' (R2)

'To be fair, I've hardly done any. Because I'm out on visits - I don't have the time.' (T7)

4.3.2.4.2 Convenience of virtual meetings

The use of technology to deliver the sessions virtually was seen as beneficial as it reduced the time commitment required to attend the mentoring sessions, although there was 'something missing' from face to face sessions.

'And we don't have the face-to-face meetings like we did in the feasibility, which is better from a time point of view, but you lose that. It's about you need the team bit of it I think don't you - you want to feel that. But the teleconferences [monthly remote group mentoring] make more sense from a time point of view.' (T1)

4.3.2.4.3 Cross site attendance

Therapists felt that being able to share experiences, good practice and what they were learning across the different sites was beneficial and reassuring.

And yeah, it is good to attend the teleconference [monthly remote group mentoring]. Yeah, we should be knowing what things are happening in the other site as well, so we can think about similar sort of situation in our service as well. (T6)

'I think the teleconference is a really good way of sharing best practice and learning across all the different sites.' (T12)

4.3.2.4.4 Comparing selves negatively with other sites

Conversely, one therapist did not always find sharing across different sites helpful, as it made her question how their site was delivering the intervention.

'I think in terms of talking to the other sites, that's helpful but can be quite overwhelming, because people are doing things differently and then you're like oh we're not doing it like that. Yeah, that's a good idea but should we be doing that?' (T1)

4.3.2.4.5 Support from outside of the site therapy team

One team felt that they were limited in the support they could offer their RSW and that opportunities for mentoring with other RSWs at other sites would be beneficial.

'I'd also agree that if you're doing it solo, which he [RSW] is, that although he can bounce off us, he doesn't have another rehab support worker to bounce off. So for him maybe the resources offered by Nottingham in terms of the teleconferencing [monthly remote group mentoring] might be a nice resource for him to tap into.' (T20)

The CMOC themes will be considered alongside the quantitative data and the therapist demographic information in the synthesis section of this chapter before being developed into refined programme theory for the next part of the PhD (4.4).

4.3.3 Quantitative data

The quantitative data collected in the video recordings is presented in two tables. [Table 19](#) presents the contents of the recordings and [Table 20](#) presents an analysis of the core principles of the intervention being delivered in the recordings. The recordings were made when the cases had been in the trial between 3 and 39 weeks, with an average of 21 weeks ([Figure 13](#)). There was a range of activities conducted within the videos, which was expected ([Figure 14](#)). An element of assessment was included in eight of the videos (57%), although only one video (7%) was an example

of the therapist's initial assessment (T1). Goal setting activities, or a review of the goals were included in four of the videos (29%), with one video (7%) being an example of the first goal setting session (T12). In five of the videos (36%) there was engagement in leisure activities; yoga (T21), darts (T7), walking (T13 and T18) or netball skills (T20). Domestic activities of daily living were seen in two videos (14%), washing up and then hoovering (T18) and making a hot drink (T20). In 12 of the videos (86%) there was engagement in exercises that had been suggested for them as part of the intervention.

Table 19: Data identifying the background and contents of therapy sessions captured in the video data for the exploratory interview and video study

Therapist	Weeks the cases were in the trial	Assessment	Goal Setting	Leisure	Domestic	Exercise
T1	4	Initial Assessment	Yes	No	No	No
T3	17	Yes	No	No	No	Yes
T4	31	No	No	No	No	Yes
T5	11	No	Yes	No	No	Yes
T6	39	Yes	No	No	No	Yes
T7	9	No	No	Darts	No	Yes
T8	27	No	No	No	No	Yes
T12	3	Yes	Goal setting visit	No	No	Yes
T13	35	No	No	Walking	No	Yes
T16	21	No	No	No	No	Yes
T18	21	No	No	Walking	Wash up/h Hoover	Yes
T19	30	Yes	Yes	No	No	Yes
T20	34	Yes	No	Netball skills	Hot drink	No
T21	9	Yes	No	Yoga	No	Yes
Total		8 (57%)	4 (29%)	5 (36%)	2 (14%)	12 (86%)

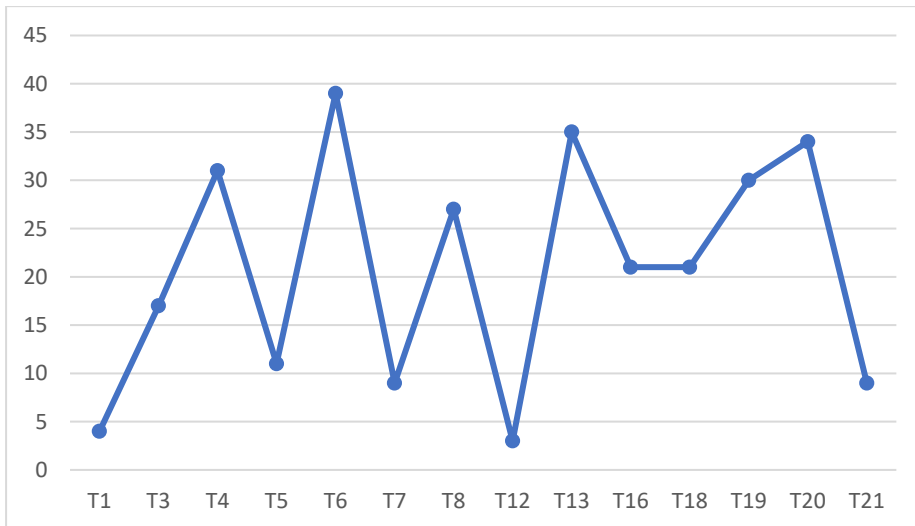


Figure 13: Line graph demonstrating the number of weeks the participants in the therapy sessions videoed for the exploratory interview and video study had been in the PrAISED trial

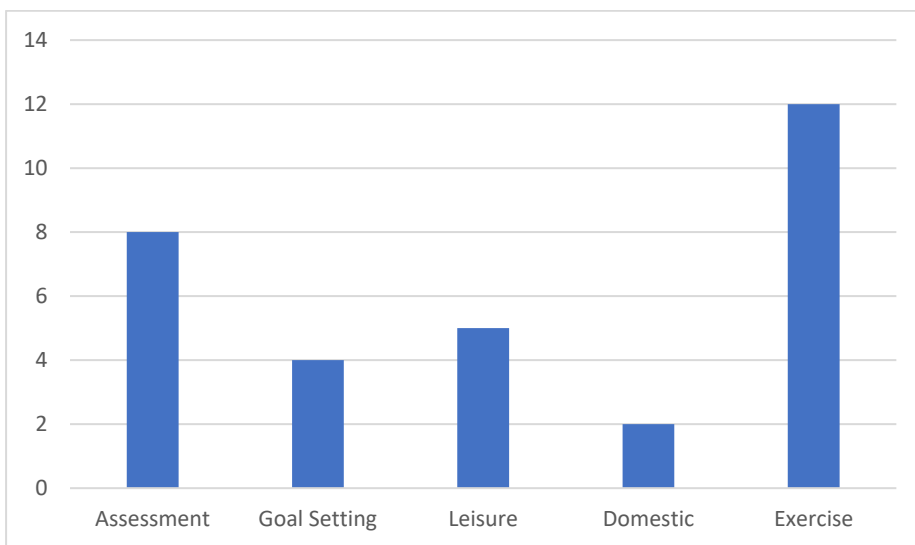


Figure 14: Bar graph demonstrating the types of activities carried out in the therapy sessions videoed for the exploratory interview and video study

[Table 20](#) portrays the findings from the video data checklists, the data is also displayed in a tree map ([Figure 15](#)). Ten out of the fourteen therapists (71%) were observed to be delivering the intervention with fidelity. Two of the cases (14%) had extenuating circumstances as to why all the core components were not delivered. T4 was observed working with a man with a recent cancer diagnosis who was in a lot of pain during the session, and the video recordings for T21 were incomplete, with at least 20 minutes of the session missing. Two further therapists (14%) did not deliver up to 10 of the core principles T6 (n=6) (43%) and T8 (n=9) (64%). Both these sessions focused on the exercise element of the intervention and did not include reference to the activities of daily living (ADL) core components of the intervention. These therapists were also from the same site team. This may have been intentional and other members of the team may have focused on the activities of daily living element in other sessions, although it is not clear from the data collected. These therapists were both from Site B, this will be considered within the synthesis section of the study.

The core principles that were most fully met were, that the intervention was tailored (n=10) (71%), challenging (n=12) (86%) and progressive (n=10) (71%), promoting/supporting independence (n=12) (86%), encouraging access of the environment (n=10) (71%) and the use of motivational theories (n=12) (86%). Principles that were more often not met were positive risk taking (n=6) (43%), and tapering and long term engagement, with these principles being only partially met in five of the videos (n=5) (36%). The findings regarding tapering and long term engagement are not that surprising as the cases are not in the later stages of the study with (n=8) (64%) in the first six months of the intervention.

Ten percent of the videos (n=2) were analysed by a second coder (AC). Across the two videos there were 28 possible core principles, three were not coded the same, one coder coded partially met when another coder coded fully met. This was an accuracy of 89% between coders. The quantitative data will be considered alongside the qualitative data in the synthesis section of this chapter ([4.4](#)).

Table 20: Data demonstrating the PrAISED core principles delivered in the therapy sessions videoed for the exploratory interview and video study

Therapist	Intensive	Tailored	Challenging	Progressive	Promote/ improve independence	Support ADLS or exercise	Support dual tasking	Access environment	Positive risk taking	Use of motivational theories	Habit forming	Tapering	Long term engagement	Goal Setting	Note	Total (FM+PM)
T1	FM	FM	PM	N/A	FM	PM	MO	FM	PM	FM	N/A	PM	N/A	PM		10
T3	FM	FM	FM	FM	FM	FM	FM	FM	N/A	FM	FM	PM	PM	FM		13
T4	PM	PM	FM	N/A	FM	PM	N/A	PM	PM	FM	NO	N/A	N/A	N/A	cancer	8*
T5	FM	FM	FM	FM	FM	FM	FM	FM	N/A	FM	PM	PM	PM	FM		13
T6	PM/ MO	MO	FM	FM	MO	MO	MO	PM	N/A	PM	PM	MO	MO	NO		6
T7	FM	FM	FM	FM	FM	PM	PM	FM	PM	FM	PM	N/A	PM	PM		13
T8	PM	PM	FM	FM	NO	FM	FM	NO	N/A	PM	PM	NO	NO	PM		9
T12	FM	FM	FM	FM	FM	PM	N/A	FM	PM	FM	PM	MO	MO	FM		11
T13	FM	FM	FM	FM	FM	FM	FM	FM	N/A	FM	MO	PM	PM	PM		12

Therapist	Intensive	Tailored	Challenging	Progressive	Promote/ improve independence	Support ADLS or exercise	Support dual tasking	Access environment	Positive risk taking	Use of motivational theories	Habit forming	Tapering	Long term engagement	Goal Setting	Note	Total (FM+PM)
T16	FM	FM	FM	FM	FM	FM	FM	FM	PM	FM	PM	N/A	PM	PM		13
T18	PM	PM	FM	MO	FM	FM	FM	FM	N/A	FM	PM	N/A	N/A	NO		10
T19	FM	FM	FM	FM	FM	FM	FM	FM	N/A	FM	MO	PM/ MO	MO	FM		11
T20	FM	FM	PM	PM	FM	PM	MO	FM	PM	FM	MO	MO	MO	PM		10
T21	PM	FM	FM	FM	FM	FM	MO	MO	N/A	FM	PM	N/A	N/A	FM	Incom- plete	9*

FM=Fully Met, PM=Partially Met, NO=Not Observed, MO=Missed Opportunity, N/A= Not applicable, *not considered to be not meeting the target due to extenuating circumstances

4.4 Synthesis and discussion

The aim of integrating the qualitative and quantitative data within a convergent mixed methods study is to increase the extensiveness and strength of each set of findings (Cresswell and Plano Clark 2018). The aim of this study was to look for possible mechanisms that were being triggered in certain circumstances within the training programme that led to the therapists being able to deliver the intervention with fidelity. The quantitative component of this study was designed to evaluate this outcome and overall would support that the therapists were able to deliver the intervention as intended. [Table 21](#) demonstrates how the quantitative data supports a number of qualitative CMOC themes identified. Relevant demographic data has also been synthesised in [Table 21](#). There were a number of potential themes from the qualitative data that could not be supported or were questioned in light of the quantitative data.

As this study was part of a larger iterative realist evaluation, the findings were carried over for refining and consolidating in the realist interview study described in [chapter 5](#). Within this section there will be some discussion of how the themes affected by the synthesis of the study relate to current literature within the field of training experienced therapy staff.

Table 21: Synthesis of qualitative and quantitative Findings from the exploratory interview and video study

Qualitative Findings			Demographic Information	Quantitative Findings	Mixed Methods Synthesis
Qualitative CMOC Theme	Outcome	Source			
Multiple opportunities for support	Confidently deliver intervention as intended	T12 T3 T16 T20	N/A	T12 – 11 Core Principles FM/PM T3 – 13 Core Principles FM/PM T16 – 13 Core Principles FM/PM T20 – 10 Core Principles FM/PM	Quantitative data is convergent with qualitative data
Use of the manual	Therapists can find the information and adapt the intervention	T18 T16 T19	N/A	T18 – 10 Core Principles FM/PM T16 – 13 Core Principles FM/PM T19 – 11 Core Principles FM/PM	Quantitative data is convergent with qualitative data
Consolidation of knowledge	Consolidate their knowledge and keep fidelity of the intervention	T1 T8	N/A	T1 – 10 Core Principles FM/PM T8 – 9 Core Principles FM/PM	Quantitative data is not convergent with qualitative data

Qualitative Findings			Demographic Information	Quantitative Findings	Mixed Methods Synthesis
Qualitative CMOC Theme	Outcome	Source			
Anxiety about the research process	The therapist feels anxious and overwhelmed and confidence is reduced	T20 T5	N/A	The quantitative data did not measure therapist confidence	Quantitative data is not convergent or divergent with qualitative data
Unclear instructions about resources	Their confidence is reduced	T20	N/A	The quantitative data did not measure therapist confidence	Quantitative data is not convergent or divergent with qualitative data
Cross professional role working	Therapists will maintain the boundaries of their professional role rather than delivering an intervention across professional boundaries	T12 T19 T3	N/A	T12, T19 and T3 – Did not cross professional roles T6 retaining to professional boundaries may have contributed to T6 low core principle score (n=6) However T5 and T20 did cross professional roles	Quantitative data is not convergent with qualitative data
Cross Site Relationships	The therapists can learn from each other's experiences	T5 T7	N/A	The quantitative data did not measure this concept	Quantitative data is not convergent or divergent with qualitative data
Feeling overwhelmed	The therapist may lose confidence when delivering the intervention	T1 T13 T18	N/A	The quantitative data did not measure therapist confidence	Quantitative data is not convergent or divergent with qualitative data

Qualitative Findings			Demographic Information	Quantitative Findings	Mixed Methods Synthesis
Qualitative CMOC Theme	Outcome	Source			
Training alongside site team members	Begin to establish effective working relationships	T4 T21	N/A	The quantitative data did not measure this concept	Quantitative data is not convergent or divergent with qualitative data
Research Processes	There may be initial difficulties implementing the intervention	T21 T5	N/A	The quantitative data did not measure this concept	Quantitative data is not convergent or divergent with qualitative data
Therapist Experience	They can more effectively engage with the training	T13	N/A	The quantitative data did not measure this concept	Quantitative data is not convergent or divergent with qualitative data
Responsiveness of the training team	Learning needs are met and there is a positive learning environment	T12 T18 T20 T13	N/A	The quantitative data did not measure this concept	Quantitative data is not convergent or divergent with qualitative data
Time constraints	The therapist will not access the monthly group mentoring	T1 T21 T20 T3 T4 T7	3 therapists attended regularly, 7 therapists attend between once and three times, 4 therapists did not attend at all.	The quantitative data did not measure this concept	Quantitative data is not convergent or divergent with qualitative data. However demographic information does support these findings

Qualitative Findings			Demographic Information	Quantitative Findings	Mixed Methods Synthesis
Qualitative CMOC Theme	Outcome	Source		Qualitative CMOC Theme	Outcome
Convenience of virtual meetings	More therapists will be able to attend	T1	3 therapists attended regularly, 7 therapists attend between once and three times, 4 therapists did not attend at all.	The quantitative data did not measure this concept	Quantitative data is not convergent or divergent with qualitative data However demographic information does not support these findings
Cross site attendance	Therapists can share best practice and learning	T6 T13 T19 T12	N/A	The quantitative data did not measure this concept	Quantitative data is not convergent or divergent with qualitative data
Comparing selves negatively with other sites	They feel overwhelmed	T1	N/A	The quantitative data did not measure this concept	Quantitative data is not convergent or divergent with qualitative data
Support from outside of the site therapy team	Therapist felt supported	T20	N/A	The quantitative data did not measure this concept	Quantitative data is not convergent or divergent with qualitative data

4.4.1 CMOC themes supported by the quantitative data

There were two themes with outcomes that were convergent with the video data.

4.4.1.1 *Multiple opportunities for support*

This theme proposed that when there were multiple opportunities for the therapists to access support from the training team, that they would be able to confidently deliver the intervention as intended. The outcome from the quantitative data overall supported this finding and for the four therapists that contributed to this theme, their individual outcomes were also convergent.

This theme fits with literature from a range of areas including training of therapy staff, continued professional development (CPD) and requirements for the recruitment and retention of therapy staff. A survey of 108 Australian occupational therapists working with older adults found that therapists valued individual support following training to put this into action (Day *et al.*, 2021). Professional support is highly valued in OT and PT professions with a meta synthesis of 12 studies identifying that providing professional support was the most highly valued factor in the recruitment and retention of therapy staff (Roots and Li, 2013). Literature from training therapists also supports this finding, for example after implementing a lower back pain training intervention for PTs and following up 431 therapists, Beneciuk *et al.* (2019) identified that ongoing consultation and site based continuing education was seen as important strategies to maintain changes in professional practice (Beneciuk *et al.*, 2019).

This isn't always the case, a study of PTs in the Netherlands found there was no difference in the implementation of new back pain guidelines between a group of PTs that took part in ongoing training and those that were just given the guidance (Bekkering *et al.*, 2005). However, it is unclear from the article how different these guidelines were from prior practice and whether this type of change in treatment plan is equivalent to the complex intervention that was the subject of training for this PhD. Overall, the literature around training experienced therapists would appear to support the benefit of multiple opportunities for support to implement interventions post training. This finding could be explored further in the next stage of the study by

considering how the multiple elements of the training programme supported the therapists in delivering the intervention in more detail.

4.4.1.2 Use of the manual

Three therapists contributed to the theme that suggested when therapists were able to refer to the manual to gain clarification on the intervention, this led to them being able to adapt the intervention to the participant as required. According to the video data for these therapists, they were delivering the intervention as intended, therefore the quantitative data supports this theme.

The use of a manual to support implementation of a complex intervention in research settings is supported in research literature, including within the MRC guidance (Skivington *et al.*, 2021) and within reporting guidance for research trials (Hoffmann *et al.*, 2014a; Van Stan *et al.*, 2019). The use of a manual is also described within literature for training of therapy staff for example a study by Dures *et al.* (2019) found that when trainers encouraged therapists to add notes to the intervention manual during training it facilitated learners to tailor the intervention (Dures *et al.*, 2014). This process allows for therapists to feel confident in delivering an intervention but may also prevent them from feeling restricted by a manual approach, i.e. they can follow the guidance creatively using their own experience and expertise.

4.4.2 CMOC themes that were not supported by the quantitative data

Two themes proposed outcomes that weren't measured by the quantitative data.

4.4.2.1 Consolidation of knowledge

Two therapists discussed the theme that opportunities for consolidation of knowledge would result in therapists being able to deliver the intervention with fidelity. When considered with their quantitative data only one of the therapists was found to be delivering the intervention with fidelity. This theme would benefit from further exploration in the next stage of the PhD.

The rationale for ongoing training and support within the training programme was to encourage therapists to become more confident and competent in delivering the intervention. The use of post training activities has been seen to support therapists in the consolidation of knowledge and practice skills. A qualitative study found that having a post training phase and follow up study day had a positive impact on PTs skills in person centred care (Lawford *et al.*, 2018). Cahill *et al.* (2021) identified that opportunities to learn and share with colleagues and peers increased OT and PTs knowledge and implementation of new ways of working (Cahill *et al.*, 2021). These findings were supported by a systematic review that found multi-component interventions for implementing evidence based practice with rehabilitation professional resulted in increased evidence based knowledge and a change in practice behaviours (Menon *et al.*, 2009b). This would suggest the ongoing elements of the training programme were, in some way providing a suitable mechanism for the consolidation of knowledge.

4.4.2.2 Cross professional role working

It was considered by three of the therapists that there was not enough detail within the training programme to support working across professional boundaries. This was demonstrated within the three video observations that were collected for these therapists. However, there were two therapists who did cross role boundaries within their recorded therapy visits. This suggests that there might be other factors that influence the crossing of role boundaries.

Role blurring is often used as a term to convey that different healthcare professionals may have areas of overlap and there may be skills that are interchangeable between professions. Role blurring was analysed as part of a realist synthesis of contemporary practice and it was found that when professionals were clear about their roles and worked together, they were able to learn from each other and support the other profession's agenda in the absence of that profession if needed (Sims, Hewitt and Harris, 2015).

Transdisciplinary care, where healthcare professionals work across boundaries however is less common. A study of transdisciplinary team work within a

musculoskeletal field of practice, found that organisational support and good communication was essential and this included having a good understanding of other colleagues' roles, being aware of personal limitations and having the right training and support (Cartmill, Soklaridis and David Cassidy, 2011). It may be that this was not something that was provided within the PrAISED training programme which led to this not being an area that therapists interviewed as part of this PhD felt comfortable with.

4.4.3 CMOC themes supported by process information

There was a theme that had an outcome supported by the process information data.

4.4.3.1 *Time Constraints*

Six therapists contributed to the theme that therapists found it difficult to attend the monthly remote group mentoring due to time constraints and conflicting responsibilities. This outcome was not measured in the video observations, but the attendance records for the monthly mentoring sessions was recorded in the demographic information. This found that the attendance rate for the 14 therapists included in the study was less than 37%. This supported the outcome that therapists found it difficult to attend these sessions.

Time constraints are frequently cited as a barrier to CPD activities (Ramani, McMahon and Armstrong, 2019; Stewart, Wisby and Roddam, 2020) alongside other commitments and lack of encouragement from managers (French and Dowds, 2008), which might lead to therapists not prioritising ongoing training and support. It has also been noted that family commitments can add to this particularly for women (Chuang, 2015). Many of the therapists on the trial were on part time contracts to facilitate working other roles or family care which may have led to a lack of prioritisation for ongoing training opportunities.

4.4.4 CMOC themes that were not supported with the process information

There was also one theme with an outcome that when compared with the process data, there was conflicting congruence.

4.4.4.1 Convenience of Virtual Meetings

Virtual meetings being more convenient was suggested by one therapist, however it does not seem to be supported by our information related to the monthly group remote mentoring sessions. Only three of the therapists were regular attendees of these mentoring sessions, although seven other therapists attended between one and three sessions during their six months delivering the intervention. Four therapists did not attend at all in this time. It cannot be determined from the information collected whether the therapists would have attended more sessions on a face-to-face basis, however only two of the sites would have been able to access face to face meetings within an hour's travel time.

The use of eLearning including video conferencing has been seen as a positive development in training strategies as it removes barriers to accessing training especially for more rurally located healthcare professionals (Samuel *et al.*, 2021). Technology can also be used to support communities of practice (Ramani, McMahon and Armstrong, 2019). Since the COVID 19 pandemic the landscape for CPD opportunities has changed (Cassidy *et al.*, 2023). A mixed methods international study which surveyed 340 healthcare practitioners and interviewed 16 participants, identified that in person events led to more collaborations and opportunities through networking (Cassidy *et al.*, 2023). However, the benefits of CPD through digital platforms were many including accessibility, time and cost implications (Cassidy *et al.*, 2023).

4.4.5 CMOC themes and poor intervention fidelity

From the quantitative data analysis therapists T6 and T8 demonstrated a lower concordance with the core principles of the intervention. Their contributions to the qualitative data have been considered. Had these therapists contributed to themes independent of the other therapists, these themes may not have been that reliable and would need further exploration. However, these therapists only contributed to one separate CMOC theme each which were supported with evidence from additional therapists. See [Table 22](#), T6 contributed to cross site attendance and T8 to consolidation of knowledge.

4.5 Strengths and limitations

This research study utilised a mixed methods design, which enabled findings from one research method to be triangulated or expanded by the second research method (Doyle et al 2009). Realist research does not prescribe whether qualitative or quantitative research methods are more favourable but that the methods should fit the question being considered (Maxwell and Mittapalli 2010). The limitations of using mixed methods research, however, is that the limitations for both methods of inquiry apply to the study. Therefore, the strengths and limitations will be considered in terms of both the qualitative and the quantitative arms of the study.

The interviews that were conducted with the therapists were not done with a realist inquiry focus. To reduce participant burden, the interviews were completed in conjunction with another researcher (CDL) who was conducting a separate but similar process evaluation (Di Lorito *et al.*, 2023b). Carrying out realist interviews, would have allowed the interviewer to explore the facets of the initial programme theory in more detail.

The two interviewers each came to the study with their own biases and assumptions that may have influenced the interviews. The first interviewer (LH) would introduce influence due to her involvement in the development and delivery of the training programme. The researcher had met therapists as part of the training programme and the therapist were aware of her involvement within the training team. The difficulties with this were that the therapists may feel that they should give a favourable opinion of the training and support programme so as not to offend the interviewer. However, the researcher had existing relationships with the therapists and there was no need to spend time during the interview building a rapport. The training team had established a culture of being open, challenging and critical during the training and support sessions which would hopefully reduce therapists need to provide only positive feedback to the researcher. The researcher also openly discussed this within the interviews, reassured the therapists that their candid responses were really valuable and that the researcher was committed to providing them with the unbiased training and support however the questions were answered.

The second interviewer (CDL) would also introduce a different set of biases and assumptions to the interviews. This interviewer was conducting a different study within the same interviews, and this may have influenced how the questions around the training and support study were explored. The use of semi-structured interviews aims to reduce this influence however the flexibility in the qualitative approach limits the standardisation of the interview schedule and there will always be a degree of impact from the interviewer (Parahoo 2006).

The researcher (LH) completed the coding and analysis for all of the interviews. Similarly to conducting the interviews, the researcher will have reviewed the material through the lens of being a member of the training team. As the researcher also has a background as a clinical occupational therapist, there will also be an element of influence from her previous experiences of receiving training and support as a therapist. The researcher was aware that this bias was present during the process and was mindful to give attention to negative cases (Pope and Mays 2000). The researcher engaged a stakeholder with experience of training therapists and realist research to help develop the evidence and themes identified into the refined programme theories. This was to reduce any potential bias and improve the rigour of this process. The project would have benefitted from a second researcher coding the interview data to also reduce bias (Pope and Mays 1995) although this was not feasible within the remit of the study.

There are a number of limitations for the analysis of the video recordings. The videos were a very small snap shot of each therapists' delivery of the intervention. The qualified therapists delivered up to 11 therapy sessions and the RSWs up to 39 sessions per participant, therefore one video recorded session would not necessarily be representative of their overall delivery. This small sample size limits the representativeness of the findings (Parahoo 2006).

The video observations were also limited to observations of the therapists' actions as we were unable to review the therapists' thought processes during the intervention session. Therefore, some of the core components such as positive risk taking, may have been occurring internally as part of therapists' clinical reasoning. This could not be observed unless the therapist expressed this out loud. Meaning, although there

are lower scores for some components, it is not necessarily the case that the therapist was not carrying out these components during the session. This may affect the validity of the research findings (Maltby et al 2014).

A further limitation to the validity of the quantitative part of the study was that some components were very broad, for example the SDT (Self Determination Theory) component was made up of 12 strategies the therapist could utilise to increase the participant's motivation. All the therapists were observed utilising strategies to some degree, but equally there were others that they could have also applied.

There was also an opportunity for bias to be present within the analysis of the video observations. The researcher had to rate whether they felt the core principle had occurred. Although examples were provided within the checklist that detailed what could indicate the presence of each core principle, this relied on the researcher making a judgement about what was occurring. A stakeholder with experience in training therapists was engaged for the purpose of rating 10% (n=2) of the video recordings. The aim of this was to ensure that the researcher was conducting the rating in a fair and replicable manner. There was concordance between the researcher and stakeholder ratings, however this could have been improved by having all the videos rated by a second person.

Finally, the presence of a researcher recording the session may have influenced the therapist's behaviour. They may have been more aware of their practice, or they may have been particularly nervous about conducting a session under observation and this may have led to them carrying out the intervention differently from their usual practice.

Overall, this study would have benefitted from more stakeholder consultation. A small group of stakeholders were consulted in a supervisory capacity on a regular basis throughout the study. However no formal stakeholder consultation took place due to the COVID 19 pandemic restrictions and time constraints.

4.6 Implications for the realist evaluation

The final stage of this study was to refine the programme theories from the previous chapter (3.10), to take into the next stage of the PhD. This was done by considering

what elements of the initial programme theories were supported by emerging CMOC themes in this study, any new insights that were identified and then collated into the refined programme theories ([Table 22](#), [Table 23](#), [Table 24](#), [Table 25](#)). Many of the proposed themes related to more than one aspect of the training programme and have been consolidated within the Overall Training Programme section within the table.

There were originally nine programme theories or statements that were proposed following the scoping review. There were 15 refined programme theories following completion of this study. There were some that remained the same as the initial programme theory, as there was not enough evidence to support or refute these theories. A number of programme theories have been amended and some new programme theories have been proposed in light of the insights that have emerged from the findings.

Table 22: Refined programme theories for the training programme, use of reflective practice and social learning, leadership, team culture, team work and cross site relationships

Initial programme theories	Evidence	Analysis	Refined programme theories
<p>If the therapists attend and engage in multiple elements of the training programme (C), then they will be confident, competent and consistent in delivery of the programme (O), because they will assimilate the learning into the intervention delivery through reflective practice and social learning (M).</p>	<p>All therapists attended at least 2 elements of the training programme and 10 out of 14 therapists also attended the monthly remote group mentoring. 10 out of 12 therapists were delivering the intervention with fidelity</p> <p>The CMOC theme 'Consolidation of knowledge' supports reflective practice and the CMOCs 'Cross site relationships', 'Training alongside site team members' 'use of a manual' and 'cross site attendance' support social learning and reflective practice</p>	<p>There is some evidence to support this programme theory but it would benefit from further exploration</p> <p>Reflective practice elements have been developed into an additional programme theory.</p> <p>CMOCs that relate to social learning have been incorporated into the cross site programme theory and site team programme theory below.</p>	<p>(NO CHANGE)</p> <p>If the therapists attend and engage in multiple elements of the training programme (C), then they will be confident, competent and consistent in delivery of the programme (O), because they will assimilate the learning into the intervention delivery through reflective practice and social learning (M).</p> <p>(NEW THEORY)</p> <p>If the therapist commences intervention delivery and returns to training (C), then they can consolidate their knowledge and maintain fidelity of the intervention (O), because they have had the opportunity to reflect on their practice and 'check' they are practising correctly (M).</p>
<p>If the site team has suitable leadership and team culture (C), then the site team will be confident, competent and consistent in delivery of the intervention (O) because the individual therapists will be more likely to attend and engage in the training programme (M).</p>	<p>No evidence</p>	<p>This would benefit from more exploration in the next study</p>	<p>(NO CHANGE)</p> <p>If the site team has suitable leadership and team culture (C), then the site team will be confident, competent and consistent in delivery of the intervention (O) because the individual therapists will be more likely to attend and engage in the training programme (M).</p>

Initial programme theories	Evidence	Analysis	Refined programme theories
<p>If the therapists attend and engage in multiple elements of the training programme with other team members (C), then they will experience a supportive training environment and deliver effective team work (O), because they will develop relationships with team members (M).</p>	<p>Supported by the CMOC theme 'Training alongside site team members'</p>	<p>This CMOC is supported but only two therapists contributed to this theme. Further exploration would strengthen the evidence for this programme theory</p>	<p>(AMENDED THEORY) If the therapists attend and engage in multiple elements of the training programme with other team members (C), then they will establish effective working relationships and deliver effective team work (O), because they will develop relationships with team members (M).</p>
<p>If the therapists attend and engage in multiple elements of the training programme with members of other site teams (C), then they will experience a supportive training environment and deliver effective cross site working (O), because they will develop relationships with other site team members and training staff (M).</p>	<p>Supported by the themes 'Training alongside site team members', 'cross site attendance' and 'support from outside of the site therapy team' Not supported by 'Compares selves negatively with other sites'</p>	<p>The CMOCs that support the programme theory have been amalgamated to form a new potential programme theory. The CMOC that does not support the programme theory has been developed into an alternative programme theory for further exploration</p>	<p>(AMENDED THEORY) If the therapists attend and engage in multiple elements of the training programme with members of other site teams (C), then they will experience a supportive training environment, they can share best practice, learn from each other's experience and deliver effective cross site working (O), because they can share ideas and experiences, make comparisons across sites, gain reassurance and develop relationships with other site team members and training staff (M)</p> <p>(NEW THEORY) If therapists from other sites are operating differently (C), then the therapist can feel overwhelmed (O), because they question what they are doing, using reflection and comparison and feel uncertain or incompetent (M).</p>

Initial programme theories	Evidence	Analysis	Refined programme theories
Other contexts such as previous experience, hours of intervention delivery, personal causation (C), may affect how the therapists engage with the training programme (M) and therefore how they deliver the intervention (O).	The CMOC theme ‘therapist experience’ proposed some evidence that therapist experience led to engagement within the initial training programme. There was no evidence of hours of intervention delivery or personal causation enabled engagement with the training programme	The potential CMOC relating to therapist experience has been added to potential programme theories. Hours of intervention delivery and personal causation to be explored in the realist interviews.	(NEW THEORY) If the experienced therapist is being trained in a new intervention (C), then they can more effectively engage with the training (O), because they can use their past experience to reflect on using the intervention during the training (M).
No initial programme theory regarding therapists lacking in confidence	CMOC themes resulting in therapists’ reduced confidence ‘anxiety about the research process’, ‘Unclear instructions about resources’, ‘Feeling overwhelmed’, ‘Research Processes’	These have been combined to make one potential programme theory regarding how therapists lose confidence	(NEW THEORY) If the therapists do not feel well informed about an aspect of intervention delivery (documentation, research processes) or see other sites working differently (C), then they will feel reduced confidence and overwhelm (O), because they feel under pressure to deliver the intervention correctly, question how they are delivering the intervention, are unclear about whether they are meeting expectations and feel uncertain (M).

Initial programme theories	Evidence	Analysis	Refined programme theories
No initial programme theory regarding multiple opportunities for support	CMOC themes regarding learning opportunities 'Multiple opportunities for support', 'Use of the manual' and 'Responsiveness of the training team',	These CMOC themes have been combined into a potential programme theory for further exploration	<p>(NEW THEORY)</p> <p>If the therapist are unsure about aspects of delivering the complex intervention, the therapists are restricted with time constraints, there is a lack of support from the site team, or sites identify a learning need (C), then learning needs will be met, the therapists are able to adapt the intervention and the therapists will feel supported (O), because there are multiple opportunities for support, the training team are adaptable, responsive and timely or they can refer to the manual to refresh their knowledge (M).</p>

Table 23: Refined programme theories for the initial training workshop

Initial programme theories	Evidence	Analysis	Refined programme theories
<p>If the therapist engages in the initial training workshop (C), then they will demonstrate a level of understanding through the post training questionnaire and deliver the intervention with fidelity (O) because they have understood the study materials, are invested in the intervention and have learnt through social learning and reflective practice</p>	<p>The quantitative findings supported that the therapists demonstrated a good level of understanding through the questionnaire and only two therapists did not deliver the intervention with fidelity to the full 14 components. The CMOC themes 'Consolidation of knowledge' supports reflective practice and the CMOCs 'Cross site relationships', 'Training alongside site team members' and 'cross site attendance' support social learning and reflective practice CMOC theme 'use of the manual'</p>	<p>There is some evidence to support this theory, although investment in the intervention was not discussed and to be explored in the next round of interviews.</p> <p>Plan to explore to explore social learning and reflective learning further.</p> <p>Therefore to continue to explore the initial programme theory.</p>	<p>(NO CHANGE) If the therapists attend and engage in the initial training workshop(C), then they will demonstrate a level of understanding through the post training questionnaire and deliver the intervention with fidelity (O) because they have understood the study materials, are invested in the intervention and have learnt through social learning and reflective practice</p>
<p>If the therapists attend the training with a certain number of other therapists (C), then they will have a greater understanding (O) because they have had the opportunity to engage in more social learning (M).</p>	<p>There were two themes that looked at working with others within the initial training workshops, 'cross site relationships' and 'training alongside site team members'</p>	<p>These themes have been merged to generate a new potential programme theory</p>	<p>(AMENDED THEORY) If therapists experience the initial training workshop with other therapists from their site and other sites (C), then the therapist can learn from each other's experiences and begin to develop effective working relationships (O), because they can share ideas and experiences, and begin to familiarise themselves with their colleagues and how they operate(M)</p>

Initial programme theories	Evidence	Analysis	Refined programme theories
No initial programme theory regarding cross professional working	The CMOC theme 'Cross professional role working' identified that therapists did not feel there was enough detail in the initial training to promote working across professional role boundaries, however therapists were observed crossing boundaries in two of the fourteen videos	Due to conflicting evidence, this theme will be utilised as a programme theory and explored within the next stage of the study	<p>(NEW THEORY) If the intervention has been designed to be delivered by multi- professionals and the training does not discriminate between professions (C), then the therapists will maintain the boundaries of their professional role rather than delivering an intervention across professional boundaries (O), because there is not enough detail in the training or time to practice those different skills (M).</p>

Table 24: Refined programme theories for the on-site group mentoring, reflection and surveillance

Initial programme theories	Evidence	Analysis	Refined programme theories
<p>If the PrAISED therapists attend and engage in the on-site mentoring (C), then this would increase their competence and confidence, and enable deliver of the intervention with greater fidelity (O), because they will have time to reflect on the interventions concepts and how they reflect on their cases and because they will feel a sense of accountability as the feel they are under surveillance (M).</p>	<p>There was limited evidence of this theme within the qualitative findings however there was a theme regarding ‘consolidation of knowledge’ which supports the reflective part of the mechanism and there was evidence in the quantitative findings that the intervention was being carried out with fidelity in 12 out of 14 sessions.</p> <p>There was a theme that was identified in relation to the onsite group mentoring ‘responsiveness of the training team’</p>	<p>Due to the lack of evidence regarding the elements of this theme. The initial programme theory will be carried over into the realist interview study in its entirety</p> <p>The theme ‘responsiveness of the training team’ has not been included here because although it was discussed in relation to the on-site group mentoring, it sits well with other themes relating to the overall training programme theory and therefore has been included above</p>	<p>(NO CHANGE)</p> <p>If the PrAISED therapists attend and engage in the on-site mentoring (C), then this would increase their competence and confidence, and enable deliver of the intervention with greater fidelity (O), because they will have time to reflect on the interventions concepts and how they reflect on their cases and because they will feel a sense of accountability as the feel they are under surveillance (M).</p>

Table 25: Refined programme theories for the monthly remote all sites group mentoring, reflection and surveillance

Initial programme theories	Evidence	Analysis	Refined programme theories
<p>If the PrAISED therapists attend and engage in the ongoing monthly group mentoring (C), then this would increase their competence and confidence and enable them to deliver the intervention with a greater level of fidelity (O) because they will have time to reflect on the interventions concepts and how they reflect on their cases and because they will feel a sense of accountability as the feel they are under surveillance (M).</p>	<p>There is some evidence that the therapists are delivering the intervention with fidelity, although it is unclear whether the monthly remote group mentoring is responsible. Three therapists who did not attend any of these sessions carried out the intervention with fidelity.</p> <p>The theme 'consolidation of knowledge' relates to the reflective element in the mechanism</p>	<p>Due to the lack of evidence to support or denounce this programme theory it will be used in its entirety in the next study.</p>	<p>(NO CHANGE)</p> <p>If the PrAISED therapists attend and engage in the ongoing monthly group mentoring (C), then this would increase their competence and confidence and enable them to deliver the intervention with a greater level of fidelity (O) because they will have time to reflect on the interventions concepts and how they reflect on their cases and because they will feel a sense of accountability as the feel they are under surveillance (M).</p>
<p>No initial programme theory time commitments</p>	<p>There were two themes that related to time commitments regarding monthly remote group mentoring 'time constraints' and 'convenience of virtual meetings'</p>	<p>These themes have been combined to for a refined programme theory</p>	<p>(NEW THEORY)</p> <p>If the therapists experience multiple constraints on their time from within and outside the study, then the therapists' ability to access the monthly remote group mentoring will be limited (O), because they may find virtual meetings more time efficient or may not be able to prioritise the group mentoring (M)</p>

4.7 Chapter summary

This chapter has discussed how the initial programme theory has been refined and developed following a mixed methods study to explore the therapists experience of receiving the training and support programme and analysis of their intervention delivery via video recordings of sessions. Although there were some limitations to this study, the initial programme theories were expanded and more detail has been proposed. These refined programme theories will be the focus of realist interviews within the next chapter of this PhD ([Chapter 5](#)) with a view to further development of the programme theories and the proposal of recommendations for training experienced therapists to deliver interventions for research trials.

Chapter 5: Consolidating the programme theories: Realist Interview Study

5.1 Chapter overview

In the previous chapters ([Chapter 3](#) and [Chapter 4](#)), programme theories were identified and refined regarding the processes involved in training and supporting therapists delivering a complex intervention as part of a research trial. This chapter explores whether the therapists' experiences supported, refuted or generated new theories. Therapists were interviewed, the data analysed for CMOC themes and then synthesised with earlier programme theories to consolidate them. Similarly to [Chapter 3](#), following the study, stakeholders were consulted following the collation of the consolidated programme theories to support the construction of resulting recommendations.

5.1.1 Aims of the study

The aim of this study was to explore what factors of a training and support programme for experienced therapists, facilitated the delivery of a complex rehabilitation intervention in a multi-site randomised controlled trial to expand and finalise the programme theory to explain how this process works.

5.1.2 Study objectives

- To explore aspects of the training programme that facilitated or hindered the therapists' implementation of the intervention and how these changed over the duration of a study.
- To examine the influence of the therapist and other contextual factors on the therapists' implementation of the core concepts taught within the research setting.
- To support or refute the programme theories identify in [Chapter 4](#) and develop them into consolidated programme theories

- To develop guidelines for designing and implementing training programmes for therapists carrying out complex interventions across multiple sites within a research setting.

5.2 Methods

Qualitative semi-structured realist interviews were conducted with therapists who had been involved with the training and support programme, to explore their thoughts on the programme theories and mechanisms that were at play within the programme. The use of interviews to support theory development was discussed by Pawson (1996). He suggested that through utilising interviews researchers could share and investigate theories through the participants accounts of how these theories may or may not operate (Pawson, 1996). In realist research, interviews can be used in different ways depending on the stage of the evaluation (Manzano, 2016). At the consolidation stage of the realist evaluation, interviews can focus on how the programme theories relate to different contexts and how programmes can be modified to result in different outcomes (Manzano, 2016).

5.2.1 Participants

A pragmatic, purposive sample of therapist participants were recruited across the five PrAISED trial sites. It was intended to sample an occupational therapist, a physiotherapist and a rehabilitation support worker from each of the five sites. However due to staff changes within the PrAISED sites, only 13 therapists who fitted the inclusion criteria were recruited. Purposive sampling is important in realist research to develop insights into the working of the programme from different perspectives (Mukumbang *et al.*, 2020).

5.2.1.1 Inclusion criteria

- Therapists who had completed the initial training workshop.
- Therapists with at least six months experience delivering the intervention to ensure they had the opportunity to implement the intervention to a range of participants and to attend the ongoing training and mentoring activities.

5.2.2 Ethical Approval

Ethical approval was obtained from the University of Nottingham Research Ethics Committee reference FMHS 123-1120 on the 21st January 2021 ([Appendix 10](#)).

5.2.3 Data collection methods

Semi structured interviews were utilised. The aim of realist interviews is to understand the programme being evaluated rather than the experiences of the participants. Therefore, the interview questions were designed to elicit therapists' opinions of the programme theory that had been developed and consider how this worked within the context of the situation (Manzano, 2016). The programme theories were discussed with the therapists, who were then asked to consider whether this worked for them and how it worked (Pawson and Tilley, 2014). To reduce the chance of the therapist responding affirmatively to please the interviewer, the therapists were asked to give examples of the programme theories in action within the programme (Mukumbang *et al.*, 2020). The interview schedule was revised as necessary between interviews to include any insights that were emerging which had not been included within the first iteration of the schedule. The original interview schedule can be found in [Appendix 11](#). An example of the type of questions included can be seen below.

'I have been reading a lot about social learning, this concept suggests that it is helpful to learn alongside others, through shared ideas and experiences, do you think this rings true for you?

- *What is the important part of that do you think?*
- *How do you think that works?*
- *Where does this happen for you in the PrAISED training?'*

All interviews were completed on Microsoft Teams due to restrictions in place during the COVID 19 pandemic. The interviews were recorded and transcribed verbatim by LH.

5.2.4 Data analysis plan

The interviews were analysed using realist analysis as discussed in Manzano (2016) and Gilmore et al (2019). The interview transcripts were imported to NVivo 12 and analysed using a coding framework based on the programme theories identified in [Chapter 4](#). Any new insights or emerging theories that did not fit within this structure were added as additional codes. The codes were then grouped into CMOC themes, based on the programme elements (initial training workshop, refresher training day etc.). They were also categorised in terms of programme theories that impacted the therapists as individuals, site teams or all site teams. Excerpts from the interviews were identified as evidence for the CMOC theme in Theory Development Tables ([Appendix 13](#)). A stakeholder with experience training therapists for RCTs assisted in categorising the data and codes into CMOC themes (VB). The video recordings, transcripts and NVivo files were password protected and stored on a university secured OneDrive storage platform designated to LH.

5.3 Process information

Details of the therapists' designation, site and training data was collected. [Table 26](#) details the therapists' demographics and amount of training they had participated in at the commencement of interview collection. Three of the therapists T5, T18 and T21 were also participants in the study detailed in Chapter 4. It was not possible to recruit an OT, a PT and an RSW for every site and therefore 6 OTs, 3 PTs and 4 RSWs were interviewed. Eight of the therapists (62%) completed their initial training workshop in a large group alongside members of their site team. Four of the therapists (31%) carried out the initial training within a small group, three of whom also had another of their site team present. One therapist (8%) completed the training on an individual basis and due to the COVID19 pandemic this was completed via Microsoft Teams.

With regards to the monthly remote group mentoring, there was a disparity in the number of sessions attended. Three therapists (23%) attended at least 10 sessions, four therapists (30%) attended between 5 and 9 sessions, four therapists (30%) between 1 and 2 sessions and two therapists did not attend any of the sessions. The

on-site group mentoring was well attended with 8 therapists (62%) attending at least one of these sessions and only one therapist not attending (8%). There were four therapist who were not given the opportunity to attend these sessions due to the date at which they became involved in PrAISED. The refresher training day was also well attended with 11 of the therapists attending (85%).

Table 26: Therapist designation and training data from the start of their involvement in PrAISED to the date of their recruitment to the realist interview study

Therapist	Participated in Chapter 4 study	Site	Designation	Length of time working on PrAISED	Number of therapists in initial training workshop	Trained with site team	Monthly remote group mentoring attendance	On-site group mentoring attendance	Refresher training workshop attendance
T2	No	A	OT	31 months	13	Yes	5	Yes	Yes
T21	Yes	A	PT	31 months	13	Yes	2	Yes	Yes
T31	No	A	RSW	19 months	4	Yes	0	N/A	No
T35	No	A	RSW	19 months	4	Yes	1	N/A	Yes
T5	Yes	B	OT	31 months	13	Yes	14	Yes	Yes
T14	No	C	OT	31 months	13	Yes	9	Yes	Yes
T30	No	C	PT	10 months	1 (online)	No	2	Yes	Yes
T11	No	C	RSW	20 months	3	No	10	N/A	Yes
T18	Yes	D	RSW	29 months	7	Yes	2	Yes	Yes
T22	No	D	OT	16 months	3	Yes	0	N/A	No
T25	No	E	OT	23 months	12	Yes	12	No	Yes
T23	No	E	PT	23 months	12	Yes	8	Yes	Yes
T24	No	E	OT	23 months	12	Yes	5	Yes	Yes

5.4 Findings

The interviews were carried out between the 20th April 2021 and 29th June 2021. All interviews were conducted by LH. Process information data collected regarding the site set up and the training data for each site. This can be found in [Appendix 12](#). The timeline below ([Figure 16](#)) indicates how the timing for this study is related to the overall PrAISED therapist training timeline and the exploratory interview and video study in chapter 4.

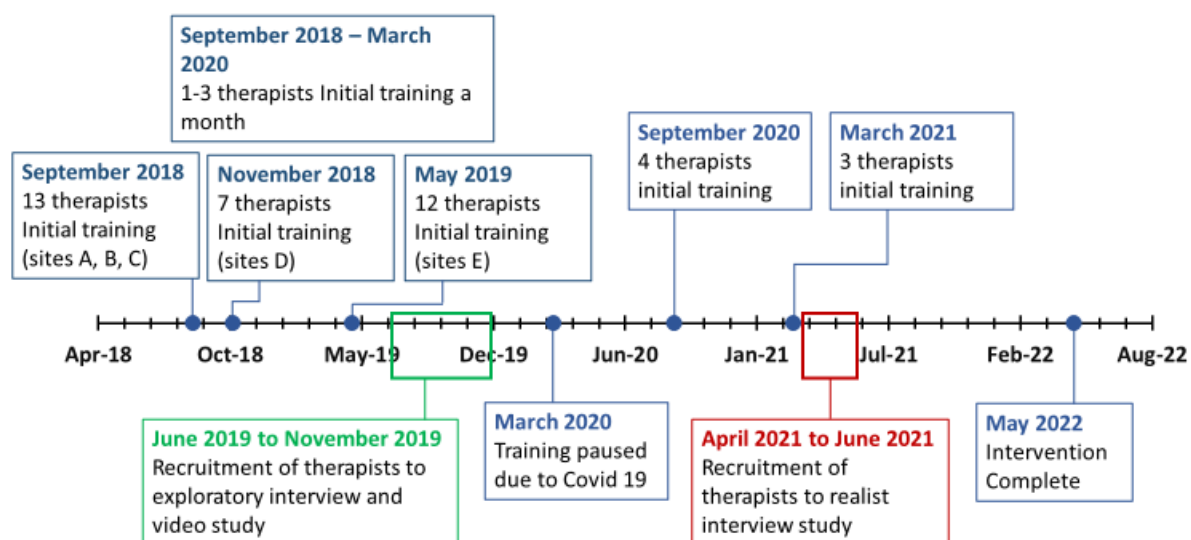


Figure 16: Position of therapist recruitment to realist interview study related to the PrAISED therapist training timeline and the exploratory interview and video study

The coding framework was developed from the initial programme theories identified in [Chapter 3](#), the findings in [Chapter 4](#) and some were identified during the analysis process ([Table 27](#)). The table also identifies the therapists that contributed to each code and the number of references that were noted per code, this information was recorded so that the context of the therapist could be considered during the analysis process. The therapists' contribution to codes, ranged from between four and fourteen different codes, although they may have more than one reference at each code. Each reference that was coded was often coded in more than one code.

Once the data had been coded, the codes were explored to develop CMOC themes, these have been presented in tables 28 – 34 ([Table 28](#), [Table 29](#), [Table 30](#), [Table 31](#), [Table 32](#), [Table 33](#), [Table 34](#)). The CMOC themes relating to the training and support

programme as a whole will be presented first, followed by those that are specific to each element of the training programme. The programme theory development tables in [Appendix 13](#) were utilised to bring the evidence together from different codes into CMOC themes. Once the CMOC themes were identified, they were synthesised and considered alongside the refined programme theory from [Chapter 4](#) to identify which of the programme theories could be consolidated and to generate potential recommendations ([5.4](#)). [Figure 17](#) illustrates the CMOC themes that emerged and categorises them into those that work at an individual level, a site team level and across all study sites.

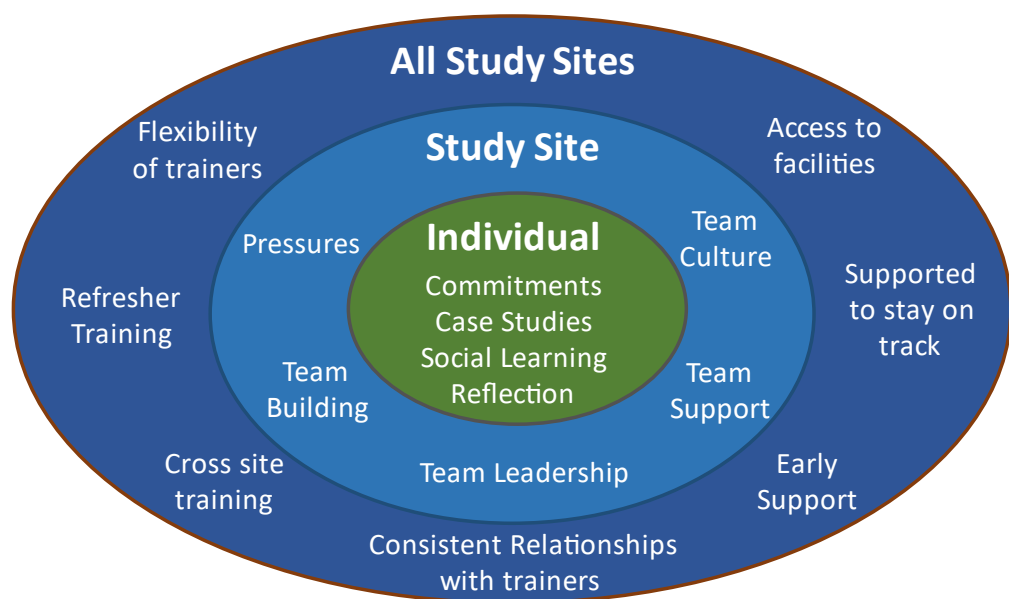


Figure 17: A diagram to show the CMOC themes that were identified during the realist interview study

Table 27: Coding Framework for the realist interview study

No	Node name	Description	Number of references	Therapists that contributed to the code
1	Access to training	Being able to access training	10	T22, T24, T18, T21, T5
2	Accountability	How training monitors intervention delivery	14	T23, T5, T2, T11, T22, T24, T25, T14
3	Adaptation of training	Adapting training to suit the needs of the learners	0	0
4	Being part of a bigger picture*	The therapists describing feeling part of a bigger picture	7	T5, 14, T24, T21
5	Case studies**	References to the use of case studies and how they work for the therapists	19	T30, T23, T5, T2, T11, T22, T24, T31, T25, T35
6	Confidence in delivery	Confidence in ability to deliver the intervention	24	T30, T23, T5, T2, T11, T22, T25, T21, T35
7	Confidence in intervention	Confidence that the intervention has value	6	T30, T2, T11, T22,
8	Consolidate learning**	References to occasions therapists felt they were consolidating their knowledge	15	T30, T5, T2, T21, T35, T24
9	Cross site relationships	Relationships between therapists at different sites	27	T30, T23, T5, T2, T11, T14, T24, T18, T25,
10	Expectations from study team**	References the therapists make to the expectations on them from PrAISED	2	T11, T22
11	Feel supported**	References to the therapists feeling supported by the training team	7	T5, T2, T14, T24, T18

No	Node name	Description	Number of references	Therapists that contributed to the code
12	Feelings of responsibility**	References to therapists feeling a sense of responsibility	1	T14
13	Invest in intervention**	References to the therapists feeling invested in the intervention	10	T30, T23, T2, T25, T21
14	Lack of detail**	References to a lack of detail within the training	0	0
15	Manual	Reference to the training manual	5	T2, T14, T24, T22, T25
16	Multiple opportunities for support**	References to the training offering multiple opportunities for support	0	0
17	Overwhelmed or anxious	References to becoming overwhelmed or anxious	5	T23, T5, T11, T14, 25
18	Prioritisation**	References therapists make to prioritising and the impact on training	20	T30, T5, T21, T23, T25, T31, T18, T24, T14, T22, T11
19	Reflection	How therapists reflect on the intervention, in relation to training or comparing to experiences	28	T30, T24, T14, T22, T11, T2, T5, T23, T21
20	Relationship with trainers	References to the therapists' relationships with the training team	11	T23, T5, T11, T14, T24, T18
21	Revisit concepts	Revisiting components of PrAISED in ongoing training	3	T5, T2, T18
22	Social learning	Concepts such as group exercises within training, learning as a team or reflecting as a team	20	T30, T5, T2, T11, T22, T14, T24, T18, T21, T31, T35

No	Node name	Description	Number of references	Therapists that contributed to the code
23	Team leadership**	References to how team leadership affected engagement with training	21	T2, T11, T22, T14, T18, T21, T31, T30, T23, T5, T25
24	Teamwork	How the therapy team work together to deliver the intervention	45	T30, T23, T5, T2, T11, T22, T14, T21, T25, T18, T31,
25	Training environment	References to the training environment and the impact on their learning	6	T30, T24, T22, T11, T5
26	Training materials in multiple formats*	Therapists referencing the training material in different formats	3	T11, T24, T25
27	Training team adaptable and responsive**	References to the training team being adaptable or responsive	6	T2, T11, T24, T18, T2, T31
28	Valued by the research team*	References to the therapists feeling valued by the research team	2	T14
Programme Architecture				
29	Initial training workshop	References to the initial training workshop	45	T30, T5, T2, T11, T22, T14, T24, T18, T21, T31, T25
30	Monthly remote group mentoring	References to the monthly remote group mentoring	32	T25, T31, T21, T18, T24, T14, T22, T22, T11, T2, T5, T23
31	Refresher workshop	References to the refresher workshop	16	T23, T5, T2, T11, T24, T18, T21, T25
32	Onsite group mentoring	References to the onsite group mentoring	4	T2, T24, T21

5.4.1 Training programme findings

The CMOC themes for the training programme have been categorised into those that have a mechanism impacting the individual, those that affect the site therapy team and those that affect the therapists across all teams.

5.4.1.1 Individual training programme CMOC themes

There were five CMOC themes that were identified as impacting the individual in relation to the training programme ([Table 28](#)).

Table 28: Individual training programme findings

Theme	Context	Mechanism	Outcome	Evidence
Competing demands	The therapists have multiple pressures on their time, from within and outside of PrAISED	The therapist prioritises how best to utilise their time, weighing up the need for support or training with other competing demands.	The therapist may or may not attend training	T21 node 18 ref 1, ref 2, T31 node 18 ref 1, T18 node 18 ref 1, T24 node 18 ref 1, T22 node 18 ref 1, T5 node 18 ref 1, T23 node 18 ref 2, T30 node 18 ref 1, ref 2
Flexibility	Therapist has flexibility in their commitments outside the study	The therapist has to prioritise how best to utilise their time	Attends the training	T11 node 18 ref 1, T23 node 18. ref 2 T24 node 18 ref 1, T14 node 18 ref 1
Social learning	Learning alongside others	Opportunities to bounce ideas off each other, get another point of view, less intense, generating knowledge, applying learning, remembering information, checking understanding and editing knowledge and reassurance	Increased ability to apply knowledge – competence and confidence	T30 node 22 ref 1, T30 node 22 ref 3 T30 node 22 ref 4, T5 node 22 ref 1 T11 node 22 ref 1, T22 node 22 ref 1 T24 node 22 ref 1, T24 node 22 ref 2 T21 node 22 ref 1, T25 node 22 ref 1
Use of the manual	Uncertainty about the intervention or particular participants	Refer to manual to refresh knowledge (independently access the information) (resource)	Therapists can find the information and adapt the intervention	T2 node 15 ref 1, T22 node 15 ref 1 T24 node 15 ref 1, T18 node 29 ref 1
Reflective practice	Therapists require time to reflect on their practice	The therapists consider their practice, review the theoretical knowledge, how it is applied in practice and consolidate their learning	Deliver intervention with increased competence and confidence	T5 node 19 ref 1, T5 node 19 ref 3 T5 node 19 ref 4, T5 node 19 ref 5 T23 node 19 ref 1, T2 node 19 ref 1 T2 node 19 ref 4, T11 node 19 ref 1 T11 node 19 ref 2, T22 node 19 ref 1 T14 node 19 ref 2, T24 node 19 ref 2 T24 node 19 ref 3, T21 node 19 ref 1 T21 node 19 ref 2

5.4.1.1.1 Competing demands

Eleven therapists described multiple competing demands on their time and there may have been times when it was logistically difficult to attend the ongoing elements of the training programme. All the therapists were working on the study part time and had other commitments across the week. This limited their availability to attend training sessions on days not allocated to the PrAISED study. When there were competing demands on their time, the therapists had to weigh up the benefits of attending against the benefits of completing other tasks.

5.4.1.1.2 Flexibility

As with above ([5.3.1.1.1](#)) eleven therapists experienced competing demands on their time across the course of the week, however some were able to be flexible. This flexibility promoted their ability to engage in the ongoing elements of the training programme.

'Yeah, I think, to be honest, I think like, because I've been, I've been really able to be very flexible, and that's mainly been because I've been waiting to go to uni, I think, for a lot of people, so if I needed full time hours, for example, I would have really struggled to do this project. And I think it must be really difficult if people have only got one day a week because they work four days somewhere else, you know, so or something like that. I think that's been the hardest part of the study to be honest, because if, you know, you can't block out a whole Friday if you're only going to get paid for one hour.' (T11)

5.4.1.1.3 Social Learning

There was a lot of discussion around social learning and how the therapists felt this worked for them. There was agreement that learning with others was preferred. Therapists described social learning as an opportunity to share experiences, gain other perspectives, test out what they have been learning in a safe environment and start to apply theoretical knowledge. This then led to increased confidence and competence when delivering the intervention.

'It worked for me in that I'm testing out my knowledge, I'm gaining knowledge and I'm exchanging ideas and sort of editing, Sort of, all the time, so it's sort of an ongoing process...' (T24)

'I quite like the discussion side of it and I guess, yeah, being with people, it always kind of helps, doesn't it, cause you can bounce ideas off each other, gives another point of view... I guess maybe trying to apply it more so if you're doing like the case studies in that discussion, you're actually like you say your processing it, but then applying it. Whereas if you just taking the listening you might be processing it, but actually are you then?' (T20)

5.4.1.1.4 Use of the manual

Similarly, to the previous study ([Chapter 4](#)), several therapists reported returning to the manual (given to them at their initial training sessions) to refresh their knowledge independently and check they had carried out all the necessary processes. This then resulted in the therapists remembering and utilising the training materials.

'...and then afterwards your coming back to the office again and going 'I'll just go back to the file, just go back to the file,' you know, 'I made a note about that,' and you know, delving back into the file and finding the page and like 'Yeah, I did this yeah, I did that and try, try to remember that next time'...' (T22)

5.4.1.1.5 Reflective practice

Reflective practice was discussed in many of the interviews as an integral part of learning new ways of practice. Some therapists (T14, T11, T24, T25) valued the time within the training programme as an opportunity for reflection, whereas others (T18, T5, T2) felt they had the opportunity to reflect within their site teams or supervision.

'I think often you, when you attend some learning, you can think about particular patients or participants you've seen before, and part of that learning is then going 'Okay, so would I have been able to use that in this

situation?’, and you sort of do that bit of reflective process almost before you start thinking about how you would deliver the intervention, you reflect back on how you might have put that into practise with different people in the past.’ (T21)

Therapists (T2, T5, T22, T23, T24, T25, T30) attempted to describe why reflection was important and how they felt this worked for them. The process described was that of considering what they had done in practice, comparing this with what they were taught in training and thinking about what else they might have done, or could do differently. This led to a deeper level of learning or knowledge.

‘So just sort of actually doing it and thinking about how you do it, as I say, when you’re, when you seeing people really and when you talking about it in supervision and in the team meeting. So thinking about it and talking about it as well, I think that helps to sort of cement some of your ideas and then give you different ideas and I guess it's like a changing, changing things so as you're learning more, you sort of adding to it an getting additional knowledge so it's that crystal knowledge...’ (T2)

5.4.1.2 Site therapy team training programme CMOC themes

When considering how the individual site therapy teams operated, six CMOC themes were identified ([Table 29](#)).

Table 29: Site therapy team training programme findings

Theme	Context	Mechanism	Outcome	Evidence
Team Pressures	The team is under increasing time pressures (from within the study or from outside)	The team prioritises patient contact	There is less engagement with the training programme	T5 node 18 ref 1, T18 node 18 ref 1 T31 node 18 ref 1, T23 node 18 ref 2 T30 node 18 ref 2
Team Support	The site team is established and supportive	The therapists have the opportunities to discuss cases and problem solve as a team	Less support from the training programme is required	T18 node 24 ref 1, T18 node 24 ref 2 T18 node 24 ref 3 Therapist demographic table for T18
Team influence	The site team values attending the training	There is an expectation that therapists will attend and systems are put in place to promote attendance	The site team engages with the ongoing training programme	T23 node 24 ref 2, T11 node 24 ref 6 T11 node 24 ref 9
Team leadership	Team leaders who engage with the team around arrangements for the ongoing training	Motivate the team to prioritise training events	The site team engages with the ongoing training programme	T11 node 23 ref 1, T2 node 23 ref 1 T21 node 23 ref 1, T21 node 23 ref 2 T31 node 23 ref 1
Reflection with team members	Reflecting with team members or explaining intervention to new team members	Opportunity to check out processes, consider understanding, their case's progress, discuss ideas, builds on experience, discuss frustrations and stay on track	Intervention delivered consistently across the team with increased confidence/ competence	T23 node 19 ref 1, T5 node 19 ref 3 T5 node 19 ref 5, T2 node 19 ref 3 T2 node 19 ref 4, T2 node 19 ref 5 T11 node 19 ref 2, T22 node 19 ref 1 T14 node 19 ref 1, T24 node 19 ref 2 and 3
Team building	The therapists engage in training as a team	Provides the opportunity to build team rapport, get to know more about team members and how they like to work and builds working relationships	Develop better team working practices	T2 node 24 ref 1, T2 node 24 ref 2 T2 node 20 ref 1, T11 node 24 ref 5 T23 node 24 ref 1, T21 node 24 ref 1

5.4.1.2.1 Team Pressures

There was a wide variety of engagement with the ongoing training programme and the reasons for this was discussed in all of the interviews. A CMOC code that came up with several therapists was that when the team became busier, it was more difficult to attend. There was more pressure to pick up cases and fit in visits. Therapists felt it was difficult to attend a training event when there were PrAISED participants that needed to be seen.

'...it was a bit difficult, because you'd be on a visit and not everybody could go, every, once the visits start, I should say, maybe that gets a little bit more difficult to attend. And if you're at the beginning of the study where you've got everybody twice weekly or whatever, then it's fitting it in as well.' (T5)

5.4.1.2.2 Team support

One sites therapy team had particularly low attendance at the ongoing training sessions. When discussing the ongoing support with a therapist from this site, it was felt they didn't have a need to gain support outside of their team. They were an established group of therapists, who geographically worked out of the same office and were confident in their experience at problem solving as a team.

'Again It's like you've got a slight different ways of doing things, but in general because we all work together, I think we just knew each other and just could just happily just get on with things. From my point of view of the, if there is an issue, I just knew I could go and talk to any of them. And I think vice versa if they had an issue or they want to know something about patient, they would come talk to me.' (T18)

5.4.1.2.3 Team influence

Three therapists discussed how the team influenced their engagement with the training programme. One therapist (T11), as quoted below, felt there was an expectation within the team that they would all attend. Another therapist (T18) reviewed how their team originally were not planning on attending the refresher day but following a discussion as a group changed their minds and decided to join. This

influenced how each team member engaged with the training programme.

'I think, we all sort of talked about the conferences [monthly remote group mentoring] as if it was something that, the teleconferences [monthly remote group mentoring], as something that we all needed to attend, it was kind of like, you know, we all had the intention to attend, and sometimes people, if they were working on that day or whatever couldn't go. I was very flexible, so I was often able to just, like, you know, move my diary around it, kind of thing like, my participants, but I think we were all we all, it was just something that we kind of expected each other to attend...' (T11)

5.4.1.2.4 Team leadership

Team leadership varied across the intervention sites and this also had an impact on how the team viewed engaging with the training programme. Some therapists (T14, T11, T2, T5) felt they were supported in using their time to engage in the training programme. Conversely a lack of support from leadership at another site (Site D) appeared to inhibit the therapists' ability to attend the remote mentoring sessions.

'Her leadership has been very supportive and she encouraged us to come to the tele conferences [monthly remote group mentoring] and the training days. So we've always wanted to come and be part of it, so I guess that's always been helpful.' (T2)

5.4.1.2.5 Reflection with team members

Therapists discussed that having the opportunity to reflect on cases with their team members was helpful for many reasons. For some it provided a mechanism for checking their understanding of the intervention, that they were providing this correctly and that they were meeting the remits of the study. Others felt this provided support and strengthened working relationships. Although this could be done outside the training programme, as highlighted in the next CMOC theme ([5.3.2.3.2.7](#)), the therapists did not always feel they had the opportunity to do this within their working week. This resulted in the intervention being delivered competently and consistently across the teams' caseload.

'Reflection, also it was sharing, cause there were frustrations as well so it was, we needed to unburden ourselves a little bit. It was ensuring that we weren't, we were keeping to the remit of the study not sort of, widening it too much and going on to other things. And also we were making sure we were consistent as well, the continuity, so that was important to reflect on that and also the reflection on the success and the engagement.' (T24)

5.4.1.2.6 Team building

Team building was an important part of the training programme for four therapists. It was noted that many of these therapists were not geographically based together and often worked on the study on different days of the week. The training was seen as a place to get to know colleagues and develop relationships, both at the initial training events and on subsequent training sessions.

'...I think because we've been together for the training for a number of days, you sort of get a rapport with someone. So you sort of build up that working relationship. So that was really helpful.... But then sitting with our whole team as a subsequent training face to face that was really helpful as well. So yeah definitely. Sort of build up the working relationship and just getting to know them as people and how they work and that was really helpful...' (T2)

5.4.1.3 Across all therapy teams training programme CMOC themes

There were five CMOC themes that had an impact on all the therapy sites as a whole ([Table 30](#)).

Table 30: Across all therapy teams training programme findings

Theme	Context	Mechanism	Outcome	Evidence
Adaptability of training staff	Therapists identify need for support	Training team offer flexible support via a range of media to ensure therapists can deliver the intervention	Therapists receive the required support and can deliver the intervention as intended.	T18 node 1 ref 1, T18 node 1 ref 2 T24 node 1 ref 1, T2 node 1 ref 1 T11 node 1 ref 1, T31 node 1 ref 1
Being part of a bigger picture	When therapists are able to attend training across all sites	They remember they are not working in isolation, feel part of a bigger study.	Therapists feel like they are 'in this together' are more enthused and feel valued	T5 node 4 ref 1, T14 node 4 ref 1 T14 node 4 ref 2, T24 node 4 ref 2 T21 node 4 ref 1, T21 node 4 ref 2
Training with other sites	Training and mentoring with those from other sites	Sharing ideas, information and experiences across sites, therapists feel affirmed, supported, a sense of camaraderie	Increases confidence in delivery and implementation of the intervention as intended	T5 node 9 ref 2, T2 node 9 ref 1 T2 node 9 ref 2, T2 node 9 ref 4 T2 node 9 ref 5, T11 node 9 ref 3 T14 node 9 ref 1, T14 node 9 ref 2 T24 node 9 ref 1, T24 node 9 ref 3 T18 node 9 ref 1, T24 node 9 ref 2 T23 node 9 ref 1, T23 node 9 ref 3 T23 node 9 ref 6, T25 node 9 ref 2
Relationships with training staff	Have time to build relationships with familiar training staff	Therapists felt supported and that there was a safe non judgemental environment to share tricky questions or concerns over paperwork, not worried about asking trivial questions	Therapists were able to engage more meaningfully in training and mentoring	T11 node 20 ref 1, T14 node 20 ref 1 and 2 T24 node 20 ref 1, 2, 3 and 4 T18 node 20 ref 1 and 2, T23 node 20 ref 1 T5 node 20 ref 1

5.4.1.3.1 Adaptability of training staff

It was noted from several of the therapists that the flexibility of the training staff (responding to emails and organising additional ad-hoc mentoring) meant the therapists could access support in the way that suited them best.

'I think we were in a sense, almost self quite self sufficient as we knew, we didn't need to come to you guys for too much, but when we did, we did a couple of teleconferences, but I think we were quite happy to send the email. I think that fit in better time wise.' (T18)

5.4.1.3.2 Being part of a bigger picture

Three therapists highlighted the sense of being part of a bigger picture as having a big influence on their motivation to deliver the intervention. Although the concept was difficult to articulate, it seemed to stem from occasions when they attended training with multiple sites and promoted a feeling that their work was valuable and they were not working in isolation even if that was how they were delivering the intervention on a day-to-day basis.

'So I think that coming together and going 'Actually yes, I can, I've realised the value of what I'm doing and it's part of something that is a really big project with lots of people doing the same thing.'. I can't, I'm trying to think why it is that that helps. I think it's quite motivating, and also to realise yea, there is lots of people in this situation, if we wanted to communicate with each other, we probably can as well. And it's that reminder that you're not just plugging along at this doing this by yourself.' (T21)

5.4.1.3.3 Training with other sites

Training with other sites was seen as favourable by most therapists. Therapists valued being able to share ideas and learn from the experiences of other sites, this promoted a sense of camaraderie and reassurance and led to therapists feeling confident they were meeting the remit of the study.

'...well it's good to be amongst other people isn't it who were doing exactly the same, and it's good to recognise whether you're all on the same page really, or whether people are diversifying out of it and just to bring everybody back to make sure that we were all doing the same.' (T5)

Conversely, one therapist (T23) recognised that training as a separate site inhibited their ability to seek support from other sites and take part in cross site discussions.

5.4.1.3.4 Relationships with training staff

Six therapists discussed the benefits of having good relationships with familiar training staff during the various training events. This promoted a safe environment where difficulties could be shared and therapists were not concerned about how this would be received. This resulted in therapists being more open and honest with the training team and the support was therefore more effective.

'It was supportive and you felt that you could just you can share anything, however little, even about the paperwork or a tricky case or what have you. No that that was really helpful...Yeah, the continuity was important. I think if it would be in a different person chairing then I probably, yeah, but I wouldn't have been so keen, but I was (T24)

5.4.2 Initial training workshop findings

When the initial training was discussed there were four CMOC themes that were identified as applying directly to this element of the training programme ([Table 31](#)).

Table 31: Initial training workshop findings

Theme	Context	Mechanism	Outcome	Evidence
Timeliness of training	Large time gap between the training and start of intervention delivery	Therapists are worried that they will forget elements of the intervention and at times needed to refresh knowledge using the manual	The intervention is delivered as intended but therapist may lack confidence	T14 node 17 Ref 1, T18 node 8 Ref 1 T25 node 29 ref 1
Case studies	Case studies are utilised within the training	Therapists relate case study to someone they know, and actively learn through applying theoretical knowledge.	Facilitates engagement in training session, consolidating knowledge, identifying expectations and increases retention of information	T30 node 5 Ref 1, T30 node 5 ref 2 T23 node 5 ref 1, T2 node 5 ref 2 T11 node 5 ref 2, T22 node 5 ref 1 T24 node 5 ref 2, T31 node 5 ref 2 T35 node 5 ref 1, T25 node 5 ref 1
Commitment to the intervention	The therapists learn about the evidence informing the intervention and the process of intervention evaluation	The therapists understand why the intervention is being evaluate and this promotes a sense of responsibility and commitment	The therapists have confidence that the intervention is reputable and are invested in delivering it.	T11 node 7 ref 1, T11 node 7 ref 2 T22 node 7 ref 1, T 23 node 13 ref 1 T2 node 13 ref 1, T2 node 13 ref 2
Learning in groups	Learning with small groups (4-12), or with the ability to carry out activities in small groups	Enables therapists to feel safe and take part in activities	Theoretical knowledge is consolidated and applied	T5 node 29 ref 1, T2 node 29 ref 4 T21 node 29 ref 1, T31 node 29 ref 2

5.4.2.1 *Timeliness of training*

Many of the sites experienced a delay between the training sessions and when intervention delivery began. This period of time resulted in some anxieties from the therapists as they were unable to put their learning into practice immediately and were concerned that they would forget elements or processes that would need to be done in practice. Using the manual was identified as a strategy to cope with this, however it did have an impact on some therapists' confidence when they began delivering the intervention.

'But what we found was, as we sort of had a little bit of a gap before we got our first patients, our first five participants, we found that we kept having to refresh as we went along' (T18)

5.4.2.2 *Case studies*

Case studies were a large part of the initial training programme and many of the therapists discussed how these were helpful to them. The therapists felt they were able to project the case study onto someone similar that they had worked with in the past, and this helped them picture the hypothetical work they would do with them. The therapists also felt this was helpful to check out what they had learned, to consolidate their knowledge through applying theory to a practical situation and to identify what was expected of them in terms of intervention delivery.

And I think the cases, I think, I think, I probably wouldn't have been able to understand it without looking at cases without thinking. 'How would I do this in this situation?' or 'Have I got a person that I know of that I could have done this with?' It would be very hard to understand what I was doing otherwise.
(T23)

5.4.2.3 *Commitment to the intervention*

There was some discussion as to whether it was helpful to discuss the background of the intervention in training, some therapists felt it was helpful and that an understanding of the nature of the study and all that was involved promoted a sense of commitment and responsibility within the therapists.

'...it's sort of imprinted on us that what the study was about, that we have to meet the criteria, it is a big study with a lot of money, I don't think you can be flippant with it, and I think it's your personal conscience, your personal, your judgement. T14)

5.4.2.4 Group size

There was a wide variation in group sizes within the initial training. All therapists said they would prefer to train with others so that they were able to consolidate learning through discussion and group activities. A couple of therapists felt that larger groups would inhibit their ability to engage in a group, although this could be mitigated through dividing into smaller groups for learning activities.

Personally, I'm better on smaller training, because I'll ask more questions if it gets above, I don't know, above 12, I'll ask questions, but I'll probably, I'll think about them a bit more that I want to look silly. (T2)

5.4.3 On-site group mentoring findings

There was only one CMOC theme that was identified for the on-site group mentoring sessions, that of having access to early support ([Table 32](#))

Table 32: On-site group mentoring findings

Theme	Context	Mechanism	Outcome	Evidence
Early support	A site is new or there is a new group of therapists at a particular site	Increased momentum and provided practical help and support when the intensity of intervention delivery began to increase	Therapists were more confident in delivering the intervention	T24 node 34 Ref 1, T21 node 34 ref 1 T 21 node 34 ref 2

5.4.3.1 Early Support

A couple of therapists highlighted the support that they had received at the onsite group mentoring visits as particularly helpful. That these were carried out at a stage where the therapists were beginning to require some practical suggestions, identify the boundaries of the intervention and value support and reassurance.

'I think we needed that., more input to start early on to sort of launch us, really, I think we might have lost a bit of momentum if we hadn't had that, And because it was getting more real by then, I think we needed it, sort of felt more, yeah, the intensity needed to increase, so that was, that was helpful... It was a practical meeting in on mass with other people so I think it was really helpful and you're going to get information face to face that you wouldn't have got on the teleconference.' (T24)

5.4.4 Monthly remote group mentoring findings

The monthly remote group mentoring was discussed by a number of therapists with four CMOC themes being identified ([Table 33](#)).

Table 33: Monthly remote group mentoring findings

Theme	Context	Mechanism	Outcome	Evidence
Access to resources	Site teams did not identify the logistics of attending ongoing training	It is not convenient for them to attend	Therapists do not attend the monthly group remote mentoring	T22 node 1 Ref 1, T18 node 1 Ref 2
Supported to stay on track	Therapists attend regular mentoring meetings	They reminded about the study purpose and how they should be delivering the intervention	Therapists are focused on delivering the intervention as intended	T11 node 2 Ref 1, T22 node 2 Ref 1 T14 node 2 Ref 1
Early support	The site, or team of therapists are new to the intervention	They are in the process of learning and find sharing experiences with others reassuring	Therapists engage with the ongoing training and feel supported	T5 node 30 ref 2, T24 node 30 ref 1
Video conferencing	If meeting face to face is not feasible video conferencing is preferable to tele conferencing	It is easier to follow social cues and feels more informal	The therapists feel more able to take part in discussions	T5 node 30 ref 4, 30 node MT ref 1

5.4.4.1 Access to resources

A lack of resources was particularly evident at one site and highlighted in one interview. There was a lack of resources and space to facilitate attending the remote mentoring sessions. As a result, the therapists at this site sought out advice in alternative ways.

'And also yeah, you know, as we discovered today, it's really difficult to get booked time where you could participate in a conference, streaming. It's not easy here, and then we were in the process of moving department, so they've actually knocked down what was our old office, which had absolutely nowhere that you would have been able to do that.' (T22)

5.4.4.2 Supported to stay on track

Several therapists identified that the monthly remote mentoring helped them to keep within the boundaries of the of the study and prevent diversification of the intervention. The phrase 'supported to stay on track' was coined by one of the therapists, who felt this was done in a nurturing way.

'I think that I find it helpful to kind of keep on track and keep like touch base and kind of be reminded almost of what we should be doing and what the, 'cause I think with a study this long you can kind of just, I don't know, I think it, I think if you kind of just left everybody to their own devices after the first year, after the first training session and then said we'll see you in a year, I think you could end up with participants doing like really random stuff.' (T11)

5.4.4.3 Early support

It was suggested by one of the therapists that attendance at the remote mentoring was greater when the site was at the early stage of delivering the intervention. This may be because the therapists required more support at this stage or that the sites were under less pressure. An earlier CMOC theme identified that therapists were less likely to attend the ongoing elements of the training programme when the site is under pressure.

'I think maybe it is more useful at the beginning when everybody is going through the learning stages and the processes and the different things that you've got to fit in. I think maybe it was perhaps more useful then at the

beginning, and that maybe, as time goes on, perhaps you don't need it as frequently, but then everybody is at different stages, different sites at different stages, aren't they as well' (T5)

5.4.4.4 Video conferencing

Several therapists highlighted that using videoconferencing for remote mentoring was preferred to teleconferencing. They suggested this was because they were able to observe more social cues and felt more comfortable being able to see people's faces.

'Just because, maybe it was because I was new, but I don't know, but I think having it on Microsoft Teams and being able to see people's faces, made it feel a lot more informal and more sort of, I don't know, easier to talk, maybe.'
(T11)

5.4.5 Refresher training day findings

Finally, CMOC themes relating to the refresher training day; there were three CMOC themes that were identified in relation to this element of the training programme ([Table 34](#)).

Table 34: Refresher training day findings

Theme	Context	Mechanism	Outcome	Evidence
Meeting face to face	Meeting face to face with therapists from different sites	Able to have informal discussions that promote networking, share knowledge, build relationships and provide reassurance	Building cross site relationship and increase confidence in delivering the intervention	T23 node 31 ref 2 T18 node 31 ref 1 T21 node 31 reef 3 T 25 node 31 ref 1
Opportunity for reflection	Protected time to consider cases as a site therapy team	Discussions on complex cases alongside theoretical information and how to apply evidence based practice	Increased confidence at adapting intervention for more complex participants	T5 node 31 ref 1 T2 node 31 ref 1 T2 node 31 ref 2 T2 node 31 ref 3 T11 node 31 ref 1 T24 node 31 ref2 T18 node 31 ref 1 T23 node 31 ref 2 T21 node 31 ref 1
Revisit concepts and stay on track	Protected time to review concepts from initial training programme	Therapists can clarify their knowledge, consider the adaptation of the intervention for more complex participants and feel reassured that they are providing the intervention comparably with other sites	Increased confidence at adapting intervention for more complex participants and remain delivering the intervention as intended	T5 node 31 ref 2 T 5 node 21 ref 1 T2 node 21 ref 1 T2 node 31 ref 3

5.4.5.1 Meeting face to face

The refresher training day was held as a face to face training event. Therapists felt this was beneficial to building relationships and networking. Therapists also highlighted that this made them feel part of something bigger and that their contributions were valued.

'It did give you that those, those networking chances that is always my reasons for going to conferences, which is, you know, just chatting to the to the people in the other areas... so the, those conversations, those haphazard conversations, don't happen when you go on a teleconference.' (T23)

5.4.5.2 Opportunity for reflection

Several therapists appreciated the opportunity within the refresher training to spend time with their colleagues considering how they were delivering the intervention and how they could support more complex participants.

'And then the next set of face-to-face training [refresher training], I kind of, had that again because we had all of the different ideas. And different, you know, hearing different people's, what different people were doing with their participants and that sort of thing. That again I came away from that and thought about different things that I could do. So I think they're probably the main moments when I've had that reflection.' (T11)

5.4.5.3 Revisit concepts and staying on track

Therapists also described the refresher training as an opportunity to check that they had understood how the intervention should be delivered and to gain reassurance that their service was providing a similar intervention to the other sites.

'I just found it really beneficial, especially the conference [refresher training day] as well, you know, sort of coming back together and cause that was probably like a year and a half after I had the training. So it was helpful then just reiterate it, clarify things and get a good understanding. So yeah, that was very helpful.' (T2)

5.5 Implications for realist evaluation

In order to synthesise the results from this study, the findings were reviewed in combination with the programme theories refined in the previous chapter ([4.5](#)). Gilmore et al (2019) described an approach that was utilised to group together CMOCs from across case study findings to identify the demi-regularities within a programme. ‘Demi-regularities’ are the ‘semi-predictable patterns that can be found within a programme’ (Vareilles *et al.*, 2017). This process was used to generate consolidated programme theories for this study. The outcome of this process can be found in the table below ([Table 35](#)), where the refined programme theories have been considered in relation to the evidence generated within this study.

There were 15 refined programme theories from the mixed methods study in [Chapter 4 \(4.5\)](#) and a further initial programme theory relating to the refresher training day which was not evaluated within that study from [Chapter 3 \(3.10\)](#). They will be discussed in relation to the study findings below. The programme theories that were refined in the previous study and were supported in this study have been discussed first. The programme theories which could not be consolidated by this study and the CMOC themes that identified potentially new programme theories will be considered later.

The programme theories will no longer be presented in terms of the different training programme elements as themes often related to more than one element and this has enabled greater synthesis and easier articulation of the consolidated programme theories. Therefore, there are several refined programme theories that lead to a consolidated programme theory. Furthermore, several generic programme theories, that were related to individual elements of the training programme, have been discontinued as they have been superseded by some of the more specific and meaningful programme theories ([Table 35](#)).

The findings from this study have resulted in seven consolidated programme theories, two non-consolidated programme theories and five new programme theories. Evidence for these theories and recommendations based on a number of these theories have been considered in the [Table 35](#) below.

Table 35: Consolidation of programme theories and recommendation development

Initial programme theories	Evidence	Analysis	Consolidated programme theories	Potential Recommendations
<p>If the therapists attend and engage in multiple elements of the training programme (C), then they will be confident, competent and consistent in delivery of the intervention (O), because they will assimilate the learning into the intervention delivery through reflective practice and social learning (M).</p> <p>If the therapist commences intervention delivery and returns to training (C), then they can consolidate their knowledge and deliver the intervention as intended (O), because they have had the opportunity to reflect on their practice and ‘check’ they are practising correctly (M).</p>	<p>CMOC theme ‘social learning’</p> <p>CMOC theme ‘reflective practice’</p> <p>CMOC theme ‘reflection with team members’</p> <p>CMOC theme ‘supported to stay on track’</p> <p>CMOC theme ‘opportunity for reflection’</p> <p>CMOC theme ‘revisit concepts and stay on track’</p>	<p>There is evidence from multiple CMOC themes to support this programme theory, however it would benefit from more exploration of outcomes</p>	<p>If the therapists attend and engage in multiple elements of the training programme (C), then they will consolidate their knowledge and be confident, competent and consistent in delivery of the intervention (O), because they will assimilate the learning into the intervention delivery through reflective practice and social learning (M).</p>	<p>Therapists would benefit from opportunities for reflection on practice throughout the duration of the trial</p> <p>Therapists would benefit from being able to share learning experiences across different trial sites throughout the duration of the trial</p> <p>Therapists would benefit from ongoing training and support proportional to the length of the trial</p>

Initial programme theories	Evidence	Analysis	Consolidated programme theories	Potential Recommendations
<p>If the site team has suitable leadership and team culture (C), then the site team will be confident, competent and consistent in delivery of the intervention (O) because the individual therapists will be more likely to attend and engage in the training programme (M).</p>	<p>CMOC theme 'team influence'</p> <p>CMOC theme 'Team leadership'</p> <p>Therapist</p> <p>Therapist and sites demographi5</p>	<p>The sites that were more regular attenders to the ongoing elements of the training programme discussed the role their teams and the team leadership played in facilitating engagement</p>	<p>If the site team has suitable leadership and team culture (C), then the site team will be confident, competent and consistent in delivery of the intervention (O) because there will be clear expectations, encouragement and systems in place to facilitate attendance and engage in the training programme (M).</p>	<p>Site leaders or PIs to have training which includes clear expectations for their role in supporting therapy teams</p> <p>Site teams to set up systems that facilitate attendance at training such as discussion of attendance in business meetings</p>
<p>If the therapists attend and engage in multiple elements of the training programme with other team members (C), then they will establish effective working relationships and deliver effective teamwork (O), because they will develop relationships with team members (M).</p>	<p>CMOC theme 'team building'</p> <p>CMOC theme 'reflection with team members'</p>	<p>Therapists highlighted within the interviews that opportunities to work as a team were limited on the study and that the training provided good opportunities for building relationships and problem solving complex cases.</p>	<p>If site therapy teams do not have the opportunity to meet regularly but engage in multiple elements of the training programme together (C), then they will utilise effective team work to deliver the intervention with increased confidence, competence and consistency (O), because they will develop working relationship that allow them to effectively progress cases through shared learning and problem solving (M).</p>	<p>Attending initial training and other elements of the training programme with site team members</p>

Initial programme theories	Evidence	Analysis	Consolidated programme theories	Potential Recommendations
<p>If the therapists attend and engage in multiple elements of the training programme with members of other site teams (C), then they will experience a supportive training environment, they can share best practice, learn from each other's experience and deliver effective cross site working (O), because they can share ideas and experiences, make comparisons across sites, gain reassurance and develop relationships with other site team members (M).</p> <p>If therapists experience the initial training workshop with other therapists from their site and other sites (C), then the therapist can learn from each other's experiences and begin to develop effective working relationships (O), because they can share ideas and experiences, and begin to familiarise themselves with their colleagues and how they operate (M).</p>	<p>CMOC theme 'social learning'</p> <p>CMOC theme 'training with other sites'</p>	<p>The themes around social learning were some with the strongest support from the therapist interviews. Conversely one therapist felt that by receiving training separately from other sites this inhibited her ability to benefit fully from cross site opportunities.</p>	<p>If the therapists attend and engage in multiple elements of the training programme with members of other site teams (C), then they will experience a supportive training environment, they can share best practice, learn from each other's experience and deliver effective cross site working (O), because they can share ideas and experiences, safely test and edit knowledge, make comparisons across sites, gain reassurance and develop relationships with other site team members (M).</p>	<p>Therapists would benefit from being able to share learning experiences across different trial sites throughout the duration of the trial</p>

Initial programme theories	Evidence	Analysis	Consolidated programme theories	Potential Recommendations
<p>If therapists from other sites are operating differently (C), then the therapist can feel overwhelmed (O), because they question what they are doing, using reflection and comparison and feel uncertain or incompetent (M).</p>	<p>This programme theory was not supported in this study</p>	<p>This programme theory would benefit from further exploration in the future</p>	<p>No consolidated programme theory</p>	<p>No recommendations</p>
<p>If the experienced therapist is being trained in a new intervention (C), then they can more effectively engage with the training (O), because they can use their past experience to reflect on using the intervention during the training (M).</p>	<p>CMOC theme 'case studies'</p>	<p>Many therapists discussed case studies which included using their experience and reflecting on how the intervention could be applied to previous cases they had worked</p>	<p>If the experienced therapist is being trained in a new intervention (C), then they can more effectively engage with the training, consolidating knowledge and retaining information(O), because they can use their past experience to reflect on case studies within the training to actively learn through applying theoretical knowledge to a practical situation (M).</p>	<p>Case studies should be included within the initial training programme</p>

Initial programme theories	Evidence	Analysis	Consolidated programme theories	Potential Recommendations
<p>If the therapists do not feel well informed about an aspect of intervention delivery (documentation, research processes) or see other sites working differently (C), then they will feel reduced confidence and overwhelm (O), because they feel under pressure to deliver the intervention correctly, question how they are delivering the intervention, are unclear about whether they are meeting expectations and feel uncertain (M).</p>	<p>This programme theory was not supported in this study</p>	<p>This programme theory would benefit from further exploration in the future</p>	<p>No consolidated programme theory</p>	<p>No recommendations</p>
<p>If the therapist are unsure about aspects of delivering the complex intervention, the therapists are restricted with time constraints, there is a lack of support from the site team, or sites identify a learning need (C), then learning needs will be met, the therapists are able to adapt the intervention and the therapists will feel supported (O), because there are multiple opportunities for support, the training team are adaptable, responsive and timely or they can refer to the manual to refresh their knowledge (M).</p>	<p>CMOC theme 'adaptability of training team' CMOC theme 'relationship with trainers' CMOC theme 'use of the manual'</p>	<p>There was discussion around the relationships the therapists have with the training team which benefit from the trainers being both flexible and consistent, the use of the manual was also supported</p>	<p>If there is flexible, consistent mentoring that is responsive and to the therapists' range of circumstances (C), then the learning needs will be met and the therapist able to adapt the intervention as required (O) because they have the opportunity to discuss their practice, consult the manual and feel supported (M).</p>	<p>Therapists would benefit from multiple opportunities for consistent and flexible mentoring</p>

Initial programme theories	Evidence	Analysis	Consolidated programme theories	Potential Recommendations
<p>If the therapists attend and engage in the initial training workshop(C), then they will demonstrate a level of understanding through the post training questionnaire and deliver the intervention with fidelity (O) because they have understood the study materials, are invested in the intervention and have learnt through social learning and reflective practice (M).</p>		<p>It no longer feels useful to have a programme theory related to the initial training, these concepts have been discussed in programme theories related to the training programme, and cross site working</p>	<p>No consolidated programme theory</p>	<p>No recommendations</p>
<p>If the intervention has been designed to be delivered by multi-professionals and the training does not discriminate between professions (C), then the therapists will maintain the boundaries of their professional role rather than delivering an intervention across professional boundaries (O), because there is not enough detail in the training or time to practice those different skills (M).</p>	<p>This programme theory was not supported in this study</p>	<p>This programme theory would benefit from further exploration in the future</p>	<p>No consolidated programme theory</p>	<p>No recommendations</p>

Initial programme theories	Evidence	Analysis	Consolidated programme theories	Potential Recommendations
<p>If the PrAISED therapists attend and engage in the on-site group mentoring (C), then this would increase their competence and confidence, and enable deliver of the intervention with greater fidelity (O), because they will have time to reflect on the interventions concepts and how they reflect on their cases and because they will feel a sense of accountability as the feel they are under surveillance (M).</p>		<p>It no longer feels useful to have a programme theory related to the on site group mentoring, these concepts have been discussed in programme theories related to the training programme, and cross site working</p>	<p>No consolidated programme theory</p>	<p>No recommendations</p>
<p>If the PrAISED therapists attend and engage in the monthly remote group mentoring (C), then this would increase their competence and confidence and enable them to deliver the intervention with a greater level of fidelity (O) because they will have time to reflect on the interventions concepts and how they reflect on their cases and because they will feel a sense of accountability as the feel they are under surveillance (M).</p>		<p>It no longer feels useful to have a programme theory related specifically to the monthly remote group mentoring, these concepts have been discussed already in programme theories related to the training programme, and cross site working</p>	<p>No consolidated programme theory</p>	<p>No recommendations</p>

Initial programme theories:	Evidence	Analysis	Consolidated programme theories	Potential Recommendations
<p>If the therapists experience multiple constraints on their time from within and outside the study, then the therapists' ability to access the monthly remote group mentoring will be limited (O), because they may find virtual meetings more time efficient or may not be able to prioritise the group mentoring (M).</p>	<p>CMOC theme 'competing demands' CMOC theme 'flexibility' CMOC theme 'team pressures' CMOC theme 'early support'</p>	<p>Prioritisation was a mechanism that appeared in a number of CMOC themes, therapists who were new to the intervention, or new sites may have prioritised attending training</p>	<p>If the therapists have to prioritise their commitments and their learning needs (C), then they will decide whether to engage in the monthly remote group mentoring (O), because there are multiple and flexible opportunities for support and mentoring (M).</p>	<p>Therapists' flexibility to be considered at recruitment. Expectations and remuneration considered in contracts.</p> <p>Opportunities for therapists to access early support or flexible support should be included in the training programme.</p>
<p>No previous programme theory</p>	<p>CMOC theme 'supported to stay on track', revisit concepts and supported to stay on track'</p>	<p>The concept of being monitored was discussed with the therapists who did not feel this was the case. A number of therapists reframed this and reported they felt they were supported to deliver the intervention correctly or 'stay on track'.</p>	<p>If the therapist have the opportunity to view concepts from the training programme and how they are applying them in practice (C), then they will have increased confidence and ability to adapt the intervention for complex participants and remain delivering the intervention as intended (O) because they will be reminded of the remit of the study, have had the opportunity to clarify their knowledge and consider the adaptation of the intervention for more complex cases (M).</p>	<p>Providing ongoing opportunities for reflection and shared learning including early support and refresher training</p>

Initial programme theories	Evidence	Analysis	Consolidated programme theories	Potential Recommendations
No previous programme theory	CMOC theme 'commitment to the intervention'	Four therapists discussed that learning about the background of the intervention was important for their investment in the intervention and for having confidence in delivering it.	If the therapists learn about the evidence informing the intervention and the process of intervention evaluation (C), then they will have confidence that the intervention is reputable and are invested in delivering it (O), because they understand why the intervention is being evaluate and this promotes a sense of responsibility (M).	Inclusion of the development of the intervention and the evidence base behind it within the initial training should be considered
No previous programme theory	CMOC theme 'being part of a bigger picture	Four therapists discussed this in relation to the refresher training.	If therapists are able to attend training across all sites (C), then they will feel like they are 'in this together' are more enthused and feel valued (O), because they remember they are not working in isolation, feel part of a bigger study (M)t.	Further support for the recommendation for refresher training and training across multiple sites.

Initial programme theories	Evidence	Analysis	Consolidated programme theories	Potential Recommendations
No previous programme theory	CMOC theme 'timeliness of training'	This was discussed by three therapists across three different sites	If there is a large time gap between the training and start of intervention delivery (C), then the intervention is delivered as intended but therapist may lack confidence (O), because therapists are worried that they will forget elements of the intervention and at times needed to refresh knowledge using the manual (M).	Delays between training and commencing intervention delivery should be minimised
No previous programme theory	CMOC theme 'access to resources'	This theme was related to one site but was fundamental to them being unable to regularly attend virtual mentoring sessions.	If the teams did not identify the logistics of attending ongoing training (C), then therapists do not attend the monthly group remote mentoring (O), because it is not convenient for them to attend (M).	Ensuring therapists are able to access resources to attend training
No previous programme theory	CMOC theme 'videoconferencing' CMOC theme 'meeting face to face' CMOC theme 'group size'	These themes require further exploration	No consolidated programme theory	No recommendations

5.5.1 Consolidated Programme Theories

5.5.1.1 *Multi-component training programme*

There were a number of CMOC themes presented in the findings which support these programme theories. The CMOC themes 'reflective practice', 'reflection with team members' and 'opportunity for reflection' support the concept that when therapists are provided the opportunity to reflect on their practice they review their application of theoretical knowledge and consolidated their learning. Some therapists particularly valued being able to reflect as a team as they valued others' insights and felt it improved team working. It was highlighted that having time to reflect on practice was limited in the course of the working week and opportunities to do this during training facilitated problem solving of complex cases.

The CMOC theme 'social learning' also contributed evidence to this theory. Therapists valued the ongoing elements of the training programme as this allowed them to learn from the experiences of others and gain reassurance. The CMOC themes of 'supported to stay on track' and 'revisit concepts and stay on track' are also relevant to this programme theory. Therapists valued opportunities to refresh their knowledge to keep them focused on the remit of the trial and prevent divergence from the intended intervention.

The evidence from this interview study supports this programme theory, however it would have benefitted from more exploration of the outcomes. For example, exploring the intervention being delivered by therapists who had attended various elements of the programme theory may have highlighted whether certain elements are more useful than others to certain groups of therapists. These two programme theories were merged as they were presenting very similar concepts.

If the therapists attend and engage in multiple elements of the training programme (C), **then** they will consolidate their knowledge and be confident, competent and consistent in delivery of the programme (O), **because** they will assimilate the learning into the intervention delivery through reflective practice and social learning (M).

Box 3: Consolidated programme theory: Multi – component training programme

This programme theory would support recommendations for providing opportunities for reflective practice, shared learning experiences across different trial site and the use of ongoing training or mentoring throughout the duration of the trial.

5.5.1.2 Impact of team culture in engagement of training and implementation of new interventions

There were two main CMOC themes that related to this programme theory, 'team influence' and 'team leadership'. Sites that were regular attenders at the ongoing training elements discussed that their team culture facilitated this through expectations that they would attend, encouragement from team leadership to support attendance and systems in place to ensure that attendance is considered. These elements weren't in place in sites where attendance was more sporadic.

Similarly, to the programme theory above, this theory would also benefit from more exploration of the outcomes. These at present have been defined from the therapists' perspectives and it would strengthen the theory to have these explored from a less subjective standpoint. The programme theory has been consolidated to include further details that of the mechanism that have been derived during this interview study.

If the site team has suitable leadership and team culture (C), **then** the site team will be confident, competent and consistent in delivery of the intervention (O) **because** there will be clear expectations, encouragement and systems in place to facilitate attendance and engage in the training programme (M).

Box 4: Consolidated programme theory: Team culture

This programme theory would support recommendations for team leaders or site PIs having clear role expectations for supporting therapy teams and for site teams to set up systems to facilitate attendance at training and mentoring opportunities.

5.5.1.3 Importance of training as a team

Team working is important in complex interventions that are delivered by multiple therapists working together. Many of the therapy teams did not work out of a single geographical base and the part time nature of their contracts, meant opportunities to spend time together as a team were limited. It was highlighted by a number of therapists, across a range of sites that attending the initial training and ongoing elements of the training programme with members of their site intervention team was beneficial for team building, discussing cases and sharing ideas. This programme theory was expanded upon to incorporate some of the detail from the relevant CMOC themes.

If site therapy teams do not have the opportunity to meet regularly but engage in multiple elements of the training programme together (C), **then** they will utilise effective team work to deliver the intervention with increased confidence, competence and consistency (O), **because** they will develop working relationship that allow them to effectively progress cases through shared learning and problem solving (M).

Box 5: Consolidated programme theory: Team building

This programme theory would support the recommendation of attending training or mentoring alongside other site team members.

5.5.1.4 Benefit of cross site relationships

Many therapists supported the benefits of cross site relationships as a result of training alongside other site members and were able to explain in detail how they felt this worked for them. It was also noted from a therapist who did not experience the initial training a part of a multi-site group that this inhibited her from engaging with other site teams outside of training events. The programme theory has been expanded to include further details from the CMOC themes identified.

If the therapists attend and engage in multiple elements of the training programme with members of other site teams (C), **then** they will experience a supportive training environment, they can share best practice, learn from each other's experience and deliver effective cross site working (O), **because** they can share ideas and experiences, safely test and edit knowledge, make comparisons across sites, gain reassurance and develop relationships with other site team members (M).

Box 6: Consolidated programme theory: Cross site relationships

This programme theory would support the recommendation of cross site training opportunities during the initial training workshop and ongoing elements of the training programme.

5.5.1.5 The use of case studies in training

The use of case studies was discussed by eight of the therapists interviewed. These were seen overwhelmingly positively and therapists discussed how these functioned by utilising their existing experience to apply theoretical knowledge to a practical case which enabled them to consolidate their learning. A previous programme theory had attempted to explore how the therapist used previous knowledge to engage with the training programme and case studies were identified as a key part of the mechanism that facilitated this. The result is the consolidated programme theory below.

If an experienced therapist is being trained in a new intervention (C), **then** they can more effectively engage with the training, consolidating knowledge and retaining information(O), **because** they can use their past experience to reflect on case studies within the training to actively learn through applying theoretical knowledge to a practical situation (M).

Box 7: Consolidated programme theories: Case studies

The recommendation that case studies should be utilised in the initial training workshop and additional training programme elements if appropriate can be made from this programme theory.

5.5.1.6 *The need for flexibility mentoring when supporting therapy staff*

There were discussions around the training team, that their consistency led to a safe training environment where challenges could be discussed and that their flexibility and adaptiveness enabled therapists training needs to be met and prevent a delay to intervention delivery. Being able to access information and support in different ways was particularly important to therapists who were subject to constraints on their time and their availability to access regular training or mentoring. Although this would be impossible to replicate in clinical practice, for a research trial where timescales are tight and intervention delivery in a prescribed way is important this flexibility is appropriate.

If there is flexible, consistent mentoring that is responsive and to the therapists' range of circumstances (C), **then** the learning needs will be met and the therapist able to adapt the intervention as required (O) **because** they have the opportunity to discuss their practice, consult the manual and feel supported (M).

Box 8: Consolidated programme theory: Flexible mentoring

This programme theory supports the recommendation for a consistent, flexible and adaptable training team to facilitate the training and support programme.

5.5.1.7 *Therapists' difficulties with prioritisation of training and CPD*

Prioritisation was a concern that came up in a number of CMOC themes. Prioritisation changed over the duration of the trial with therapists prioritising the ongoing mentoring when they were new to the intervention, but as sites became busier, they were required to weigh up the benefits against other commitments differently.

If the therapists have to prioritise their commitments and their learning needs (C), **then** they will decide whether to engage in the monthly remote group mentoring (O), **because** there are multiple and flexible opportunities for support and mentoring (M).

Box 9: Consolidated programme theory: Prioritisation of training

This programme theory leads to further support for the recommendation for a consistent, flexible and adaptable training team to facilitate the training and support

programme, to ensure any difficulties the therapists may have do not lead to delays in intervention delivery. This programme theory also supports the recommendation that therapists benefit from early support to provide reassurance and ensure therapists are delivering the intervention as intended.

5.5.2 Non-Consolidated Programme Theories

There were two programme theories from [Chapter 4](#) that were not supported by the realist interview study and would require further investigation in the future to support, refute or refine them.

5.5.2.1 *Negative comparison across site therapy teams*

Within this interview study, therapists did not report this experience. This programme theory would benefit from further exploration to determine clearly the context, mechanisms and outcomes that are at play and potential recommendations that would be useful in this situation.

If therapists from other sites are operating differently (C), **then** the therapist can feel overwhelmed (O), **because** they question what they are doing, using reflection and comparison and feel uncertain or incompetent (M).

Box 10: Non-consolidated programme theory: negative comparison across site

5.5.2.2 *Cross role boundary working*

There was no evidence that the training programme was able to influence cross boundary working for this intervention, further exploration would be required to determine the training and support required to facilitate this for future interventions.

If the intervention has been designed to be delivered by multi- professionals and the training does not discriminate between professions (C), **then** the therapists will maintain the boundaries of their professional role rather than delivering an intervention across professional boundaries (O), **because** there is not enough detail in the training or time to practice those different skills (M).

Box 11: Non-consolidated programme theory: cross role boundary working

5.5.3 New programme theories

As the realist interview study provided an opportunity for the therapists to discuss their experiences of the training and support programme as part of in-depth interviews, there were some CMOC themes that did not relate to previous programme theories. These could not be consolidated with evidence from the previous studies and therefore are being presented as new theories that would benefit from further exploration separately from this PhD.

5.5.3.1 *Supported to stay on track*

The initial programme theory considered whether there was a mechanism related to monitoring that was at play within the training programme. There was no evidence within the previous mixed methods study to support this, however, it remained in the programme theory as it was previously identified by the stakeholder group. The concept of monitoring or surveillance was discussed with many of the therapists in the realist study who felt they related more to the idea that they were being ‘supported to stay on track’ as opposed to monitored. This may be a result of limiting the interviews to the therapists’ experience of the training programme, as other stakeholders involved with the training and intervention delivery may have had a different understanding. For example, there may have been a mechanism related to monitoring from the perspective of the training team who may have utilised their experience of the therapists training and mentoring to monitor how the intervention was being delivered.

If the therapist have the opportunity to view concepts from the training programme and how they are applying them in practice (C), **then** they will have increased confidence and ability to adapt the intervention for complex participants whilst delivering the intervention as intended (O) **because** they will be reminded of the remit of the study, have had the opportunity to clarify their knowledge and consider the adaptation of the intervention for more complex cases (M).

Box 12: New programme theory: supported to stay on track

5.5.3.2 *Commitment to the intervention*

The concept of investing in the intervention was not present in previous programme theories related to the initial training workshop. It was discussed by four of the

therapists interviewed who felt that an awareness of how the intervention was developed led to them having confidence in the validity of the intervention and resulted in their commitment to delivering it.

If the therapists learn about the evidence informing the intervention and the process of intervention evaluation (C), **then** they will have confidence that the intervention is reputable and are committed and invested in delivering it (O), **because** they understand why the intervention is being evaluated and this promotes a sense of responsibility (M).

Box 13: New programme theory commitment to the intervention

Although it would benefit from further evidence to consolidate it, a recommendation that providing the therapists with an understanding of the background and evidence relating to the intervention being evaluated is supported by this programme theory.

5.5.3.3 Being part of a bigger picture

Four therapists discussed a sense of feeling part of a bigger picture as a result of the refresher training, which led to them feeling valued and enthused to be a part of the study. This is a new concept and would benefit from further research to understand how it operates and how the therapist or intervention might benefit.

If therapists are able to attend training across all sites (C), **then** they will feel like they are 'in this together' are more enthused and feel valued (O), **because** they remember they are not working in isolation, feel part of a bigger study (M).

Box 14: New programme theory: Being part of a bigger picture

This programme theory supports training and mentoring across multiple sites and the use of refresher training.

5.5.3.4 Access to resources

This was only related to one intervention site but was fundamental to their ability to attend remote training events. Although this could have been rectified through better communication between the site and the training team, it highlights the potential consequences of making assumptions.

If the teams did not identify the logistics of attending ongoing training (C), **then** therapists do not attend the monthly group remote mentoring (O), **because** it is not convenient for them to attend (M).

Box 15: New programme theory: Access to resources

A potential recommendation from this programme theory would be to ensure all therapists have access to the resources and facilities they need to engage in training and mentoring sessions.

5.5.3.5 Timeliness of training

Three therapists from different sites identified that their confidence in delivering the intervention as intended was affected by the gap between training and intervention delivery. As this was replicated across a number of sites, this concept would also warrant further exploration and consideration of strategies to mitigate this in the future.

Proposed Programme Theory: **If** there is a large time gap between the training and start of intervention delivery (C), **then** the intervention is delivered as intended but therapist may lack confidence (O), **because** therapists are worried that they will forget elements of the intervention and at times needed to refresh knowledge using the manual (M).

Box 16: New programme theory: Timeliness of training

This proposed programme theory would support a recommendation that any delay between provision of initial training and the start of intervention delivery be minimised.

5.5.4 Areas for further exploration

5.5.4.1 Modes of delivery

A few topics were discussed within the training sessions related to how the training was delivered. There was some discussion as to the best modes of delivering training. It was felt that face to face was superior to videoconferencing in terms of providing networking or opportunities for more informal discussions and support. However, it was noted in the previous study that the use of teleconferencing or

videoconferencing reduced the time commitment needed to attend mentoring sessions which may increase attendance especially for sites that are geographically further apart. Another consideration raised by three therapists considered the impact of group size on their engagement within training sessions, with differing opinions. These details would benefit from further exploration to determine whether there is any impact on knowledge acquisition or intervention delivery.

5.6 Discussion

5.6.1 Summary of findings

This study was able to consolidate a number of programme theories relating to therapists' experiences of engaging in a training and mentoring programme to enable them to deliver a rehabilitation intervention as part of a rehabilitation trial. The interview data supported that the therapists benefited from a multi-component training programme that allowed them to consolidate and apply their learning. That team culture, including leadership was an important aspect in how engaged individual team members were in the training. That training facilitated effective team relationships which supported implementation. The use of cross site relationships facilitated the sharing of knowledge and increased confidence in implementing the new intervention. Flexibility from training staff was highly valued as therapists found prioritising the ongoing element of the training programme difficult on a long term basis.

5.6.2 Novel contribution to the field

This study has led to a number of novel contributions to the field of training experienced therapists for research studies. As evidenced in [Chapter 1](#) there is a limited amount of research discussing the use of training therapists for delivering complex interventions as part of rehabilitation trials. The context is important because contrasting with traditional treatment settings, this requires the intervention to be delivered in a specific way, to meet certain fidelity standards, rather than integrating the new intervention with existing ways of working. For this reason the use of support, mentoring and refresher training was considered as part of the training programme and understanding how this was accessed, how it

consolidated learning and maintained fidelity with the core principles of the intervention was important.

The emphasis on context and the benefit of recruiting therapists from different trial sites has led to exploration of the factors that influence the uptake of training including team cultures and leadership. It also allowed us to consider the nature of relationships in the engagement and use of training opportunities such as the relationships between the trainers and therapists, the therapists at each site and the therapists across all trial sites.

Use of the realist evaluation methodology meant that as well as identifying if the training programme was successful, it was possible to consider the benefits of utilising multiple components within a training programme and also to consider how and why these were useful. It was possible to both consider the efficacy of the components of the training programme, such as the refresher training or the mentoring, and also to consider discreet elements and how they facilitated learning such as the use of case studies.

The individual programme theories have been considered in terms of literature below. Although there are some overlaps with existing knowledge in this field, much of it has been collated from adjacent contexts and not for research settings, and considers efficacy rather than how contextual factors and different elements of training lead to intervention delivery. This study has enabled the proposal of a number of recommendations for training therapists for delivering interventions as part of rehabilitation research trials which is lacking from existing recommendations on the research of complex interventions ([5.8](#)).

5.6.3 Comparison to existing literature

Following the implications for the realist evaluation above, this section will consider the themes relevant for the consolidated programme theories against existing literature.

5.6.3.1 Multi – component training programme

The therapists identified that the multiple components of the training programme enabled them to embed their learning into practice, to reflect and then question their practice when they returned to mentoring or training events leading to therapists feeling more confident and competent in delivering the intervention to more complex cases. This finding has been replicated in previous studies. For example, an evaluation of a training programme for a vocational rehabilitation intervention identified that ongoing mentoring reduced difficulties with implementation and allowed for problems solving (Holmes *et al.*, 2016). A study of physiotherapists found that ongoing support and education had improved patient outcomes for those experiencing neck pain (Cleland *et al.*, 2009) and multi-component training for rehabilitation clinicians led to both perceived and actual changes in professional behaviour (Menon *et al.*, 2009a).

In contrast, a number of studies investigating training programmes for therapists, identified poor results and identified that the participants would have benefited from some form of ongoing support or further implementation strategies to change therapists' professional behaviours (Dunleavy, 2015; Balogun *et al.*, 2018). A Cochrane review of 104 studies into educational meetings (workshops, training etc) found only a minimal impact on patient outcomes (Forsetlund *et al.*, 2021). There is literature that contradicted this, for example, a study for PTs and OTs who reported increased confidence from a one day course on burns interventions (Bergkamp *et al.*, 2013). A study that evaluated the impact of a bespoke implantation strategy of 21 hours of in-service training over the course of a year for musculoskeletal PTs identified that their ongoing approach only had a minimal impact on the therapists' competencies (Banks, Meaburn and Phelan, 2013).

It is difficult to compare these results, as the studies were heterogeneous in design and the educational and implementation strategies varied widely. Some studies used self-report or therapist confidence as outcomes and others looked at improvements in patient outcomes. There is also variation in those undertaking and delivering the interventions which made it hard to identify themes within the literature. Although this programme theory was supported by a number of therapists, within this study, there were some therapists who felt they were delivering the intervention

competently having only engaged in a minimal amount of ongoing training. This potentially reflects the mixed picture of the literature available in this field.

5.6.3.2 Impact of team culture in engagement of training and implementation of new interventions

This study identified that supportive leadership and team culture had an impact on their engagement in the training programme and the implementation of the intervention. This is a picture that is supported in continuing professional development literature with health care professionals. The support of leadership or management was identified to have a positive impact on both training engagement (Haywood *et al.*, 2013; Dures *et al.*, 2014; Lloyd *et al.*, 2014; Hunt *et al.*, 2022), implementation of new practice following training (Chard, 2000) and in research interventions (Dures *et al.*, 2014; Di Bona *et al.*, 2017b).

These studies also supported the need for team support. Morris *et al.* (2020) identified that in order to implement evidence based practice in rehabilitation, there needs to be support and commitment across all levels of an organisation from management and commissioners but also for the teams delivering the intervention (Morris *et al.*, 2020). In another study, peer support was highlighted as providing a safe environment to share challenges and practice skills when delivering research interventions (Di Bona *et al.*, 2017a). Peer support was also cited as an enabler to Continuing Professional Development (CPD) engagement in both the UK and in Australian healthcare professionals (Haywood *et al.*, 2013; Lloyd *et al.*, 2014). Overall the literature was supportive of this programme theory.

5.6.3.3 Importance of training as a team

The importance of training as a team within this programme theory was that it led to the therapists building working relationships and strategies to work together. Di Bona *et al.* (2017) found that peer support was important in the development of a safe environment where challenges could be discussed. A study of a German rehabilitation identified that coaching as a team had positive impact on team working strategies and patient outcomes (Körner *et al.*, 2017). Although coaching

and mentoring can be very different, the concept of a CPD activity that is shared as a team could have similar results as it allows for teams to spend time together considering their practice and sharing experiences. There was only limited literature found to support this programme theory.

5.6.3.4 Benefit of cross site relationships

Another consolidated programme theory from this study was that relationships were formed between the therapists at different sites and these had a positive impact on the therapists: sharing knowledge, problem solving and providing reassurance that the trial expectations are being met. There are examples of therapists from different workplaces supporting each other in developing their practice. One example is a study that aimed to improve knowledge transfer in OTs through the use of co-mentoring others on the course (Ashburner *et al.*, 2015). Those that took part reported the same outcomes as the therapists within this PhD.

There is literature in support of communities of practice, where groups of therapists with similar interests can support each others' learning. Barry et al, (2017) conducted a literature review that found that communities of practice enabled therapists to reflect and share experience, share knowledge and implementation strategies. The literature review identified that the diversity and working across traditional boundaries was an important part of this (Barry *et al.*, 2017). An example of a community of practice would be a group of PTs that formed a community of practice following a training course (Camden *et al.*, 2017). Their self-perceived knowledge, skills and practice was assessed before and after 5 months engagement in the community of practice and was found to have had a positive effect, although it is unclear if this translated to patient outcomes. Therapists' confidence in delivering interventions was identified as an important outcome for the training programme within this study. This literature would add support to this programme theory.

5.6.3.5 The use of case studies in training

The use of case studies to illustrate the delivery of the intervention had a positive impact on the therapists in the study as it allowed them to consolidate and apply

their new knowledge. Case studies are utilised within undergraduate healthcare training as common practice under the umbrella of case based learning. A large literature review was completed with 104 studies into the use of case based learning within undergraduate medical and healthcare education (Thistlethwaite *et al.*, 2012). This review found that there was little evidence about its effectiveness. It did identify that students liked this method of teaching and it provided a good basis for group work and social learning. This is a different type of education to training experienced therapist, who have their professional body of experience to draw on and will be using a different level of critical and clinical reasoning to undergraduate students.

A separate literature review was conducted which included undergraduate and registered healthcare professionals (McLean, 2016). This study found that it was an effective learning tool for applying knowledge and could improve patient outcomes. Case studies were used as a post training intervention in a PT trial treating back pain (Beneciuk *et al.*, 2019). Due to the design of the study, they were unable to determine the impact on implementation delivery but did identify the positive impact on the therapists' confidence delivering the intervention. Although there are mixed views on the effectiveness of case study training methods, the literature does support the programme theory relating to case studies for experienced therapy staff.

5.6.3.6 The need for flexibility when supporting therapy staff and therapists' difficulties with prioritising training and CPD

These programme theories are somewhat related. As the therapists had difficulties prioritising the ongoing training, this required the flexibility from the training staff in order to provide effective and timely support. A lack of time is frequently reported as a barrier to CPD within literature. For example, a national UK survey of healthcare professionals found that therapists felt unable to make time for CPD opportunities. They were under pressure to meet productivity targets and had conflicting commitments both within their jobs and outside of the workplace (Haywood *et al.*, 2013). Another study by Lloyd *et al.* (2014) supported these findings within the Australian healthcare workforce and also highlighted the difficulties associated with staffing shortages (Lloyd *et al.*, 2014). Although these settings are different,

workload, competing priorities and staffing difficulties were present for the therapists in this study and these findings support the programme theory.

Access to expertise was highlighted as an enabler to engage in CPD activities (Lloyd *et al.*, 2014). By providing flexibility in engagement with learners, this allowed increased access to the expertise from the training team and enabled learners' needs to be met. It was difficult to find literature to support this programme theory.

5.6.4 Strengths and Limitations

There are several strengths and limitations within this study. The strengths of this study include the use of programme theories generated by previous studies in the formulation of interview schedules. The researcher being embedded in the training programme being investigated and having positive working relationships with the therapists being interviewed can also be seen as a strength, as can the use of a stakeholder group to consolidate findings. However, there were several limitations including, the positionality of the researcher, the reliance on interviews and the limited amount of stakeholder involvement.

As acknowledged in the previous [Chapter 4](#), the study was limited by the positionality of the researcher. The researcher that completed the interviews with therapists was known to the therapists as part of the training team. This was problematic for several reasons; the researcher may have unconsciously led the interviews in favour of the training programme and the therapists may have felt obliged to provide answers that were unduly positive because of this relationship. Another potential problem could be that the researcher may have introduced bias in the interpretation and analysis of the interview data. There are some positives to the researcher being involved in the programme being evaluated. The researcher was familiar with the language and experiences that were being discussed and had already established working relationships with the interviewees based on open, judgement free dialogue.

To reduce this bias, the interviewer acknowledged the potential impact of her role at the beginning of the interviews and encouraged the therapists to provide honest accounts of their experiences. Kucuk and Shelton (2021) identify that there will

always be bias with in research activities and that acknowledging it allows the reader to judge the potential impact and determine the studies usefulness (Kucuksu and Shelton, 2021). Another way to reduce subjectivity would have been to have introduced a second researcher to analyse the interview data (Mays and Pope, 2020) however this was not possible within the remit of the PhD.

The therapists' involvement may also have increased the subjectivity within the results. Two therapists were approached to take part in the study and declined. It is possible that the interviews were a self-selecting sample who did not necessarily represent the views of all the therapists who took part in the training programme. There may also have been other perspectives that would have strengthened the findings, for example, training staff, the PrAISED participants or the site PIs. Those that did not take part may have had very different views. Manzano (2016) identifies that although interviews are useful for determining causal explanations, they benefit from being supplemented with other types of data to explore generalisability within the wider contexts of the programme.

The use of a realist interview schedule may have influenced the results. Mukumbang et al. (2019) acknowledged a phenomenon termed acquiescence, where the interview subject is invited to agree with the statements presented by the researcher. To mitigate this the researcher attempted to make the interview questions as neutral as possible and to introduce more negative possibilities (e.g., the concept of whether the therapists felt they were being monitored).

It was also noted that some therapists made greater contributions than others. There were several therapists that found the format of the interviews promoted discussion and exploration of explanatory ideas, however there was also some therapists for whom the interview format had the opposite effect. This may have been a result of the lack of experience the interviewer had in conducting realist interviews and lack of ability to adapt the questions. These therapists (T22, T30, T18) had taken part in fewer elements of the training programme than others and this may have also contributed to these phenomena.

The involvement with stakeholders was limited to one group discussion and a further one-to-one meeting. There was limited time for discussion within these

arrangements and the stakeholders were focused on the recommendations that would solve situations that they had found difficult through their experience. There was not time within the meetings to go through all the recommendations in detail, therefore some of the recommendations are unsupported by the stakeholder group.

Further interviews would have allowed some of the issues raised with the stakeholders to have been discussed with the therapists. Alternatively conducting formal interviews with the stakeholders as part of the interview study may have increased the rigour and relevance of the programme theories through identifying different potential mechanisms that might not have been apparent from the therapist's perspective of the programme.

Despite the limitations, this study has been able to expand on the findings from previous chapters ([3.10](#), [4.5](#)) and generate programme theories that explain some of the key elements in the working of a training programme from the perspective of the therapists being trained. These findings have been developed into recommendations, many of which were supported by experienced stakeholders.

5.7 Stakeholder involvement

Following the consolidation of programme theories, potential recommendations were identified. The findings were combined, summarised to present to the stakeholder group, including the use of [Figure 8](#) to illustrate the findings. To simplify the discussion, the findings were categorised using the level of action (individual, study site, all study sites) rather than by training programme element.

5.7.1 Method

The stakeholder group consisted of 8 allied health professionals (4 occupational therapists, 3 physiotherapists and 1 speech and language therapist) who were experienced in either service delivery, researching complex interventions or training therapists to deliver research interventions. Seven of the stakeholders met and joined a group discussion over Microsoft Teams, however one physiotherapist was unable to attend and was met separately.

The discussion included a precis of the training programme and the realist evaluation including a description of the research methods and participants. This was followed with a presentation of the findings and recommendations, which were then discussed. The discussion occurred over Microsoft Teams and the record function was utilised to acquire a transcript of the discussion. Following this discussion, the recommendations were revised.

5.7.2 Stakeholder Findings

The stakeholder discussion is presented in [Table 36](#). The right-hand column details the recommendations that were considered. Recommendations that were supported by both the interview evidence and the stakeholder discussion are presented in green text and the recommendations that are only supported by the interviews are in orange. The text in blue denotes suggestions from the stakeholder group that have not been supported by the interviews.

Following the stakeholder meetings, a final set of recommendations was established. These will be explored further within the [Chapter 6](#) of the PhD to determine whether there is existing research and literature to support their use.

Table 36: Stakeholder discussion following realist interview study

Finding	Discussion	Recommendations
Individual		
Individual Commitments	<p>There is often a group of therapists who do not attend ongoing training or support.</p> <p>It was felt there can be some people who do not attend ongoing support as they do not feel they need it. There are some people who may feel they are high performers, but aren't high performing, they may think they are already doing what you are asking them to do and then disengage in training. Or those that are anxious and feel they are not performing but are.</p> <p>Personal commitments and overestimating the time they have available to commit to research has been problematic in other studies</p> <p>There was a discussion around assessing knowledge prior to the training and after the training and looking at testing attitude to EBP. Identifying attitudes to EBP might be useful in terms of identifying appropriate sites or at recruitment. Assessment of knowledge might lead to identification of who needs further support</p>	<p>Flexible training support</p> <p>Site set up recommendations</p> <p>Expectations of role and boundaries</p> <p>Limiting recruitment of therapists working small numbers of hours</p> <p>Assessment of therapists</p> <p>Include development of intervention and evidence base behind intervention</p>
Case studies	It was agreed that these were seen as useful and that we should be prioritising the use of case studies	Case studies
Social learning	Not discussed	Opportunities to learn with others
Reflection	Not discussed	Opportunities for reflection

Finding	Discussion	Recommendations
Study Sites		
Team culture	One therapist said that they had looked into team dynamics, management support and communications prior to site set up. Helpful in terms of study set up to look at expectations of all those involved including PIs and therapy managers as well as those delivering the intervention	Site set up recommendations
Team support	Not discussed	Flexible and responsive training support
Team leadership	Useful to identify what leadership and support the therapists will have at the outset. Discussion that the site PIs need to be engaged to encourage engagement in training. Also feeding back to PIs at PMGs. Have also had difficulties when therapists have a dual role as PI and intervention therapists	Site set up including expectations of PI/other staff
Team building	Not discussed	Opportunities to learn as a team
Site pressures	Not discussed	Flexible and responsive training support

Finding	Discussion	Recommendations
All study sites		
Access to facilities	One site had limited access to facilities to enable training	Site set up recommendations to ensure access to ongoing training
Supported to stay on track	<p>There was much discussion about supporting people to stay on track and that this could be difficult for certain types of therapists</p> <p>Gap between training and intervention delivery was a problem within other studies although it was unclear whether some delays could be prevented. Suggestion that could join mentoring with existing sites even prior to starting intervention delivery</p>	<p>Ongoing mentoring</p> <p>Supporting to stay on track</p> <p>Reducing gap between training/intervention delivery</p>
Early support	<p>Therapists accessed support more when intervention was new. It was agreed that this was an important concept to provide early support. It was questioned whether this needed quantifying or specifying what this means. There might be safety or competency issues that might require early check up.</p> <p>It is difficult at times to know what is going to be problematic until you begin to put into practice in the real world</p>	Early support
Consistent Relationships with trainers	Not discussed	Regular ongoing mentoring
Cross site training	Not discussed	Cross site opportunities

Finding	Discussion	Recommendations
Refresher training	<p>It was discussed whether this needed to be more specific, is providing this once enough or should it be done multiple times? The difficulty with quantifying some of the elements is that research studies vary greatly and needs to be proportional to the study</p> <p>This was valued in other studies for keeping therapists on track</p>	Refresher training
Flexibility of trainers	<p>Within another study it was allowed that those therapists who felt they required extra support were able to access that which increased confidence early in the study.</p>	Flexible and responsive training support
Other	<p>It was suggested that the recommendations could be developed into an audit tool</p>	To consider development of an audit tool

5.8 Recommendations

Fifteen recommendations have been developed following the analysis of the interviews and the stakeholder discussions. These have been divided into those required for the initial training into the intervention, those for providing ongoing training and support and those that are required for the setting up of intervention sites.

5.8.1 Recommendations for the initial training

1. Inclusion of the development of the intervention and the evidence base behind it.
2. Clear expectations of therapists' roles and boundaries.
3. Case studies should be used.
4. Opportunities to learn with others especially site teams.
5. Intervention manual should be provided.

5.8.2 Recommendations for the ongoing training and support

6. Provide opportunities for reflection, and sharing experiences within site team and across sites.
7. Early support to provide reassurance to therapists and ensure therapists are on track.
8. Ongoing support should be flexible and responsive with consistent staff.
9. Refresher training should be utilised to ensure therapists stay on track.

5.8.3 Recommendations for the site set up

10. Site Leaders or PIs to have training, which includes clear expectations of their role to support the therapy teams.
11. Site teams to consider systems to facilitate attendance training/mentoring, such as discussion routinely as part of their business meetings.
12. Recruitment of therapists should consider flexibility, limiting contracts with small numbers of hours and expectations and remuneration for training and mentoring time should be embedded in contracts.

13. Reducing delays between training and intervention delivery.
14. Ensuring access to equipment (i.e. videoconferencing facilities and space to receive calls).

5.9 Behaviour change

The training programme evaluated in this study aimed to encourage experienced therapists and support staff to change their professional practice and behaviour. Utilising behaviour change theory could be a useful way of articulating the recommendations.

5.9.1 Models of behaviour change and the Behaviour Change Wheel

There are many theories of behaviour change; in a 2015 scoping review identified 82 theories (Davis *et al.*, 2015). These theories aim to identify the mechanisms through which human's change their behaviour. A lot has been written about behaviour change in terms of health promotion, however there have been a few studies that consider the use of the Behaviour Change Wheel (Michie, Maartje M. van Stralen and West, 2011), in terms of training or change of behaviour in healthcare professionals (Loft *et al.*, 2017; Fahim *et al.*, 2020; Mather, Pettigrew and Navaratnam, 2022). Systematic reviews into the use of behaviour change processes, identified that strategies that are based on collective action, including educational meetings and reflexive feedback were the most successful (Johnson and May, 2015).

Michie *et al.* (2011) proposed that all behaviour change interventions fell within the following model; that capability, opportunity and motivation interact and lead to behaviour (COM-B). Following a systematic review of previous behaviour change frameworks, they determined that this could be broken down further into component parts and interventions identified to support behaviour change at an interventional and policy level (Michie, Atkins and West, 2014). They called this the behaviour change wheel (Michie, Maartje M van Stralen and West, 2011) ([Figure 18](#)).

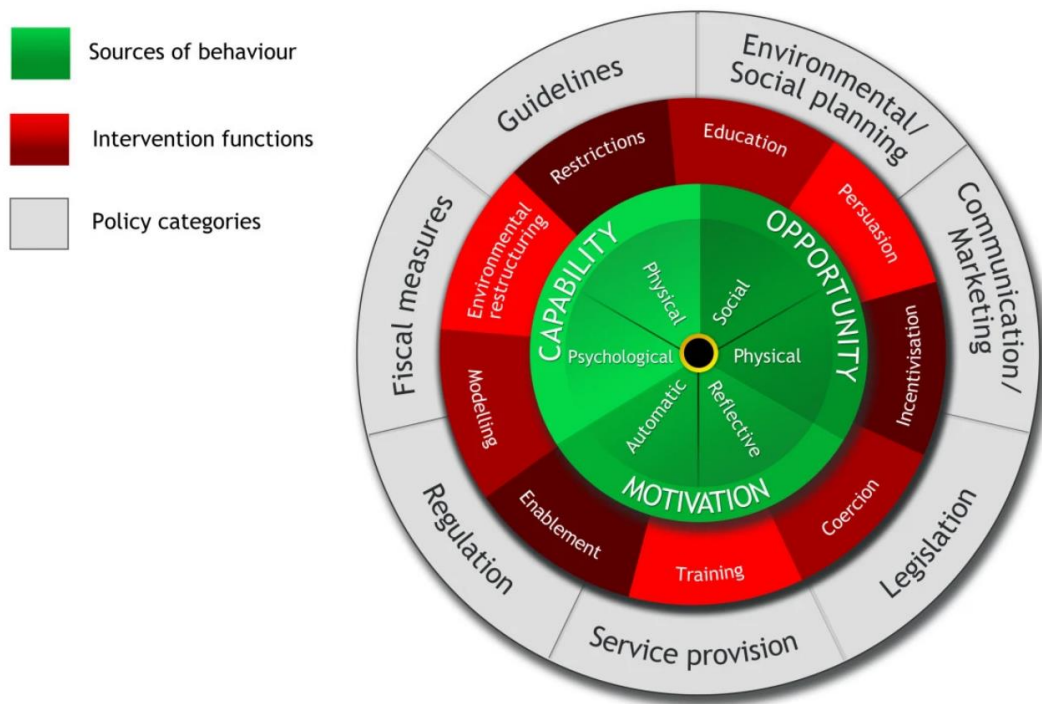


Figure 18: Behaviour Change Wheel

5.9.1.1 Strengths and Limitations of the Behaviour Change Wheel

Michie et al identify that a strength of the Behaviour Change Wheel is that it enables the programme designer to consider all intervention and policy options that could be utilised in a systematic way (Michie, Maartje M van Stralen and West, 2011). There was a paucity in the literature around designing training and support programmes for research settings ([Chapter 1](#)) and the use of a systematic approach to consider the aspects needed to promote behaviour change in a specific way would be useful. The use of models of behaviour change interventions has been recognised within the field of implementation science for applying research evidence into healthcare settings (Michie *et al.*, 2011; Michie, 2014)

Much of the COM B and Behaviour Change Wheel literature is relatively new and has been written by the same group of authors (Michie *et al.*, 2009; Michie, Maartje M. van Stralen and West, 2011; Davis *et al.*, 2015; Hurley *et al.*, 2019). This includes a book that guides the reader through the process of using the model (Michie, Atkins and West, 2014). There is however a growing body of literature discussing its use within a wide variety of fields, for example holding conversations about physical activity across healthcare (Reid *et al.*, 2022), improving compostable plastic disposal

(Allison *et al.*, 2022) and improving public transport messaging during the Covid-19 pandemic (Krusche *et al.*, 2022). This diversity may present a potential challenge as, in order to be applicable to many fields the language used within the model and future iterations, may be off putting to those in the healthcare field.

Consideration of context through the opportunity aspect of the Behaviour Change Wheel is another strength (Michie, Maartje M van Stralen and West, 2011) and this co-ordinates well with the realist evaluation approach utilised in this PhD. As seen within the interview data, when therapists lacked the opportunity to access the training due to lack of available time or resources this had an impact on their engagement.

5.9.1.2 How this model could be used with the recommendations for this study

If the training programme is seen as a behaviour change intervention, it supports the changes in the therapists' behaviour that promotes accurate delivery of the intervention. The recommendations from this study could be viewed in relation to the COM B components on the Behaviour Change Wheel ([Table 37](#)). Being able to see how the recommendations fit with the model gives additional strength to their inclusion and in the future these recommendations could be utilised alongside the Behaviour Change Wheel to guide training programme development. The concepts of the model would complement the realist evaluation approach used in this PhD as there is an emphasis on context (opportunity), mechanism (methods of behaviour change) and outcome (the product of the behaviour change). Therefore, this would also provide a framework for evaluating the recommendations in a systematic way in future work.

Table 37: Recommendations viewed through the domains of the COM B model

COM B component	What needs to happen for the target behaviour to occur	Corresponding recommendations as numbered in 5.7
Physical capability	Have the skills needed to carry out the intervention and to participate in the training programme	3., 4., 9.
Psychological capability	Have the knowledge to deliver the intervention and engage in the training programme	1., 3., 5., 7., 9.
Physical opportunity	Have the equipment available both to deliver the intervention and attend the training events	5., 7., 8., 9., 10., 11., 12., 14.
Social opportunity	Have opportunity to be influenced by team culture and peers regarding engaging in the training and delivering the intervention	2., 4., 6., 9., 10., 11., 12.
Reflective motivation	Hold positive beliefs about delivering the intervention and engaging in training	1., 2., 3., 6., 8., 9., 10.
Automatic motivation	Having the organisational routines and habits to deliver the intervention and engage in the training programme	4., 7., 9., 11., 13.,

5.10 Chapter summary

This chapter has utilised realist interviews with therapists who have been through training and support programme to consolidate the programme theories that were identified through the scoping review and refined through the mixed methods study in previous chapters ([3.10](#), [4.5](#)). The consolidated programme theories were considered alongside existing literature which provided additional strength to their findings. The programme theories were utilised to develop a set of recommendations, and these were later discussed and refined using a stakeholder group and considered using the COM B model as a potential framework for their use and future evaluation. In the next chapter ([Chapter 6](#)) the overall findings from this PhD will be considered alongside its strengths and limitations.

Chapter 6: Discussion

This PhD reports on a realist evaluation research project in which three iterative studies ([Chapter 3](#), [Chapter 4](#) and [Chapter 5](#)) were conducted with the aim of answering the research question:

How does a training programme for an experienced therapist work to enable delivery of a complex rehabilitation intervention in a research setting, to what extent and why?

This discussion chapter will summarise the overall findings of the combined studies, critique them, discuss the findings in relation to existing literature, and identify implications for research methods, clinical practice and further research.

6.1 Summary of Research

6.1.1 Study context

This PhD was situated within a large, multi-site randomised controlled trial, investigating the effectiveness of a complex rehabilitation intervention for people with mild cognitive impairment; Promoting Activity, Independence and Stability in Early Dementia (PrAISED) (Bajwa *et al.*, 2019). The MRC has guidance on the development, implementation and evaluation of complex interventions (Skivington *et al.*, 2021), however there is no guidance around training or supporting therapists to carry out complex interventions as part of a research trial.

There is little reported in trials literature to describe the training and support of intervention delivery staff, and the quality of the reports varies greatly, both in terms of how much is reported and the content of what is delivered. A number of multi-site randomised controlled trials of complex rehabilitation interventions have been successful during single site pilot or feasibility studies, but produced neutral results when carried out at multiple sites (Voigt-Radloff, Graff, Leonhart, Schornstein, *et al.*, 2011; Clarke *et al.*, 2016). The authors of these papers proposed that inconsistent delivery of the intervention and variations in therapist training may be possible causes.

Training of therapists to deliver interventions is important when setting up multi-site randomised controlled trials of complex rehabilitation interventions because

1. Therapists are anxious about taking part in research activities (Holmes *et al.*, 2016; Di Bona *et al.*, 2017b)
2. Recruitment and retention of staff to conduct research activities can be problematic (Holmes *et al.*, 2016; Di Bona *et al.*, 2017b)
3. The intervention being delivered needs to meet certain requirements in order to maintain the fidelity of the study (Borrelli, 2011; Walton, Tombor, *et al.*, 2019)

6.1.2 Study Methods

A realist evaluation was carried out in three stages.

1. Initial programme theories were developed through a scoping review and a stakeholder consultation. The scoping review identified learning theories that had previously been utilised to successfully train experienced occupational therapy and physiotherapist practitioners to deliver new interventions or evidence based practice.
2. The programme theories were refined through a mixed methods interview and video study to explore the therapists' experiences of the training and support programme and the outcomes in terms of intervention delivery.
3. The programme theories were consolidated through a round of realist interviews with therapists delivering the research intervention and then developed into recommendations with the support of further stakeholder involvement.

6.1.3 Summary of findings – Contribution to knowledge in the field

The realist evaluation resulted in seven programme theories that were consolidated through the three stages of the study. Outlined below are the programme theories. Some programme theories have been grouped together to support the discussion and recommendations.

6.1.3.1 *Multi – component training programme and flexible training programme*

The evaluation found that having a training programme which was composed of multiple training elements led to the therapists being able to implement the

intervention with a greater level of competency, particularly with more complex cases and that this was maintained over time. This was a result of the therapist being able to consolidate their learning through reflective practice and learn from their peers through social learning.

Flexibility can be utilised to ensure that therapists' needs are met. The training programme was being delivered to therapists and teams with different levels of experience and requirements. The intervention was also being delivered on a tight time scale and ensuring training needs were met in a timely manner prevented delays to intervention delivery.

If the therapists attend and engage in multiple elements of the training programme (C), **then** they will consolidate their knowledge and be confident, competent and consistent in delivery of the programme (O), **because** they will assimilate the learning into the intervention delivery through reflective practice and social learning (M).

If there is flexible, consistent mentoring that is responsive and to the therapists' range of circumstances (C), **then** the learning needs will be met and the therapist able to adapt the intervention as required (O) **because** they have the opportunity to discuss their practice, consult the manual and feel supported (M).

Box 17: Programme theories: Multi - component training programme and flexible mentoring

Recommendations regarding multi – component training programme and flexible training programme

A number of recommendations for training experienced therapists to deliver research interventions were identified and discussed in more detail in Chapter 5 (5.8), those that specifically relate to this programme theory are -

- Training programmes should be made up of multiple elements that support both the initial imparting of knowledge and development of skills, and the embedding of new ways of working, sharing learning experiences and providing the opportunity for reflection.
- Initial training workshops should include the provision of a manual, as per the MRC guidelines (Skivington *et al.*, 2021) and be explicit in defining the therapists' roles and boundaries.

- The ongoing components of the training programme should be flexible and tailored to the study sites if appropriate, conducted with consistent training staff to facilitate relationships and a safe environment, to enable therapists to maintain fidelity of the intervention.

Priorities for future research Multi – component training programme and flexible training programme

There was a high level of inconsistency of therapists attending all elements of the training programme and there were not enough data collected to determine whether this had an impact on intervention delivery. In line with realist philosophy, that different mechanisms work for different people, it was identified that different therapists felt they had different requirements for ongoing training and support. It should also be considered that therapists' perceptions of their needs might be different from their actual needs. Exploration of these factors could lead to further refinement of what a multi-component training programme should look like and how best to engage a range of therapists to meet their differing needs.

6.1.3.2 Team culture and prioritisation of training

The culture of the site team and nature of their leadership had a big impact on the way the therapists viewed the training programme and their engagement within it. This programme theory was closely linked to the programme theory involving how the therapists prioritised their time, which also had a strong influence on engagement with the training programme. When therapists' team leader and other team members highly valued the training programme, therapists were more likely to attend and prioritise the training programme over competing commitments. When the team leader and/or other team members were ambivalent, the therapists were much less likely to prioritise the training programme. However, there were occasions when, even in a team where the training programme was strongly supported, therapists were unable to attend due to competing demands. It was also observed that as the therapists felt more confident with delivering the intervention the ongoing training was also less highly rated in terms of prioritisation.

IF the site team has suitable leadership and team culture (C), **then** the site team will be confident, competent and consistent in delivery of the intervention (O) **because** there will be clear expectations, encouragement and systems in place to facilitate attendance and engage in the training programme (M).

If the therapists have to prioritise their commitments and their learning needs (C), **then** they will decide whether to engage in the monthly remote group mentoring (O), **because** there are multiple and flexible opportunities for support and mentoring (M).

Box 18: Programme theories: Team culture and prioritisation of training

Recommendations regarding team culture and prioritisation of training

To support team culture, site leaders or principle investigators would benefit from having a clear understanding of their role in supporting the site therapist teams.

- As part of their set up, study sites should be encouraged to consider how the therapy team will be facilitated to attend the ongoing training arrangements.

Priorities for future research regarding team culture and prioritisation of training

A clearer understanding on the nature of which elements of a multi-component training programme suit different therapists at different times across the intervention delivery period, could lead to greater flexibility and prioritisation.

6.1.3.3 Team building

Although the previous programme theory identified the need for a supportive team culture, given the context of the study and nature of the study sites, this was difficult to cultivate at times. Therapists were on contracts for a small number of hours and these hours may not have coincided with the other therapists in their team, they were often working remotely or from different physical bases. As such they particularly valued the opportunity to engage in the training programme as a team to support them in developing team working practices and relationships.

If site therapy teams do not have the opportunity to meet regularly but engage in multiple elements of the training programme together (C), **then** they will utilise effective team work to deliver the intervention with increased confidence, competence and consistency (O), **because** they will develop working relationship that allow them to effectively progress cases through shared learning and problem solving (M).

Box 19: Programme theory: Team building

Recommendations regarding team building

- Supporting and prioritising teams attending training together and facilitating team work activities could lead to the development of effective and efficient team working in newly established therapy teams.

Priorities for future research regarding team building

It would be interesting to explore the different ways that teams worked together at different therapy sites during multi-site trials to determine whether this leads to different outcomes in terms of intervention delivery.

6.1.3.4 Cross site relationships

Delivering the training programme to multi-site groups enabled the therapists to share experiences and learn from the experiences of others. This is particularly useful when there were new sites being set up alongside more established ones, and when therapy teams were small, as they had a wider range of experiences to learn from.

If the therapists attend and engage in multiple elements of the training programme with members of other site teams (C), **then** they will experience a supportive training environment, they can share best practice, learn from each other's experience and deliver effective cross site working (O), **because** they can share ideas and experiences, safely test and edit knowledge, make comparisons across sites, gain reassurance and develop relationships with other site team members(M).

Box 20: Programme theory: Cross site relationships

Recommendations for cross site relationships

- Providing opportunities within the multi-component training programme for multiple sites to make relationships, support each other and share

experiences will enable the sharing of best practice and an opportunity to learn from the wider experiences of others.

Priorities for future research for cross site relationships

Further exploration in how therapists can develop and utilise these cross site relationships could lead to more effective strategies being embedded within training programmes to support this.

6.1.3.5 Case Studies

Case studies were identified as a particularly useful training tool which enabled therapists to consolidate and explore the concepts they were learning and to explore the boundaries of the intervention they were going to be delivering in a safe way. There were some reported limitations with case studies in terms of lacking nuances and detail that is associated with 'real life'. However, they were highly valued overall.

If the experienced therapist is being trained in a new intervention (C), **then** they can more effectively engage with the training, consolidating knowledge and retaining information(O), **because** they can use their past experience to reflect on case studies within the training to actively learn through applying theoretical knowledge to a practical situation(M).

Box 21: Programme theory: Case studies

Recommendations for case studies

- Case studies should be utilised to support the learning of complex interventions considering their application to 'real life' situations.

Priorities for future research for case studies

Future research could focus on the nature of what makes a successful case study and how to tailor case studies to meet the specific training needs of a group of individuals. It might also be interesting to consider the use of case studies in assessing the knowledge of therapists delivering the intervention.

6.2 Comparison to existing literature

The individual programme theories from this realist evaluation have been compared to a wide range of literature in Chapter 4 (4.4) and Chapter 5 (5.5), including that from fields such as rehabilitation, implementation and continuing professional development. This section will explore the overall findings against what is already known in this field and where the findings fit with existing literature.

This study offers a different perspective as it explores a more restricted context where the interventions being implemented are for a time limited period, without the support of a wider service. The therapy teams have been convened for this purpose and therefore team culture, processes and relationships are not in place prior to commencing intervention delivery. The therapists had a wide range of experience and needs when they came to the training programme and were often delivering the intervention on a small number of contracted hours alongside other roles and unable to concentrate on delivering the intervention on a full time basis. This limits the applicability of other implementation methods such as those which rely on peer support and a process of gradual change.

The setting was explored by Connell et al. (2018) in a study regarding the implementation of a research intervention within stroke rehabilitation. The therapists were also working clinically alongside their 'research' role. Connell et al. (2018) identified that implementation was enhanced when the therapists had a strong belief in the intervention, however this then led to therapists wanting to adapt the intervention for clinical practice during the study (Connell *et al.*, 2018) which could have had implications for fidelity and contamination of a control group (Stamp *et al.*, 2021).

There is only a very limited amount of published materials that discuss the use of training and support programmes for therapists delivering interventions for randomised controlled trials of complex interventions. However, the findings are comparable when the field is widened to consider implementation of rehabilitation interventions.

An example of this would be a 2015 systematic review that looked at how knowledge translation occurred in rehabilitation settings (Jones *et al.*, 2015a). This identified

that educational activities were the most widely used strategy, many of which were multi-component although no clear guidance on what this should look like has been identified. One discussion point to arise from the review was that considering the context and potential barriers could result in strategies appropriate to the particular setting (Jones *et al.*, 2015b).

A study of rehabilitation therapists found that therapists preferred formal continuing education courses but that they were also highly influenced by peer support and learning from their peers (Rappolt, AL and Murphy, 2002). Organisational barriers were highlighted as the most problematic and that systematic change at an organisational level would be the most likely to facilitate new knowledge into practice (Rappolt, AL and Murphy, 2002)

Implementation research is dominated by models of implementation such as the Consolidated Framework for Implementation Research (CFIR) (Damschroder *et al.*, 2009). This framework considers the systems within which the intervention is being implemented alongside the intervention and process of implementing it. The contexts within which research evidence is implemented in the UK and internationally is complex and can result in many barriers (Bauer *et al.*, 2015; Rycroft-Malone *et al.*, 2016). The context for intervention trials is different and complex in other ways and therefore consideration of such models is useful. For example, although the therapy teams for intervention delivery have been set up for the purpose of the study, they are not isolated from the social contexts and settings within the organisations that are hosting the research. They may be influenced by both an educational institution and a health or social care setting, which present barriers and facilitators to intervention delivery.

A paper by Morris *et al.* (2020) aimed to identify a roadmap to implementation. They highlighted the importance of understanding context prior to implementation (Morris *et al.*, 2020) which supports the assertion made by Jones *et al.* (2015). Consideration was also given for strategies to support and sustain implementation over time. These areas of knowledge would be appropriate for considering how programme theories and potential recommendations could work in future studies

A scoping review of the use of implementation strategies for occupational therapy within stroke rehabilitation highlighted the need to report more specifically and consistently on methods of implementation (Murrell, Pisegna and Juckett, 2021). Similarly to training related to research interventions within this PhD, they found that with a lack of consistency it was difficult to identify good practice and replicate effective strategies.

6.3 Strengths and Limitations

6.3.1 Strengths and Limitations of the PhD

The main strength of this project is that the cycle of realist evaluation provided an iterative process for the programme theories to be identified, refined and consolidated through a number of different studies (Pawson and Tilley, 2014). The process of realist interviewing also encouraged this iterative theory development (Pawson and Tilley, 2014) This allowed the programme theories to become more detailed and accurate as the process advanced.

Another strength was the use of the realist evaluation approach as it allowed for consideration of different contexts in the understanding of the programme theories which enabled different experiences to be understood together (Astbury, 2018a)

Utilising therapists who were working within a research setting as part of a wider trial was a strength in this study. The therapists were engaged and keen to participate in research and many gave critically reflective accounts of their experiences. The converse side to this is that they might not be representative of all therapists and this might limit the generalisability of the findings.

There were several limitations which should be considered when reviewing the findings and recommendations in this realist evaluation. One limitation of this study was the lack of a realist review to develop the initial programme theories. A realist review aims to identify possible explanations or programme theories within a system (Wong, Greenhalgh and Pawson, 2010). However, such reviews are a lengthy and iterative process (Booth, Wright and Briscoe, 2018). Due to the time scales involved in the PhD it was decided to conduct a scoping review focusing on learning theories used to train therapists in delivering interventions or evidence based practice. A

greater range and depth of programme theories may have been gained from conducting a realist review which could have led to a more focused primary research study.

Another limitation is that the findings relied heavily on the qualitative data from therapist interviews. This means that the programme theories were largely built on knowledge gained through the perceptions of those involved in the programme delivery. Utilising theory alongside opinion would increase the credibility of the findings (Astbury, 2018b), and this was attempted through the use of learning theories within the scoping review in [Chapter 4](#) and behaviour change theory in creation of the recommendations in [Chapter 5](#), however the use of theory and more objective quantitative data within this evaluation is limited.

Another strength of this PhD is the use of stakeholder involvement, which has been utilised previously in realist research (Rycroft-Malone *et al.*, 2010; Griffiths *et al.*, 2022b). There were some gaps in the stakeholder involvement, partly due to the COVID 19 pandemic which began mid way through the second stage of this PhD. PPI and stakeholder involvement is important in research as it can help focus the research, ensure processes are transparent and that the findings will be useful in practice (Concannon *et al.*, 2019) and mitigate for the lone researcher's positionality and influence. Stakeholder involvement has also been found to increase the impact of research findings (Boaz *et al.*, 2018) A more structured approach such as a co-design group would have enabled a more meaningful level of engagement in the research process (Tembo *et al.*, 2021). Alternatively, formally interviewing stakeholders from their positions alongside the therapists would have added different perspectives to the evaluation.

As is common within multi-site randomised controlled trials of lengthy interventions, the recruitment and retention of therapists to deliver the intervention was challenging (Di Bona *et al.*, 2017a). This meant that it was difficult at times to interview therapists with a certain amount of experience of both the intervention delivery and the training programme.

Another consideration would be that the research was carried out focused on one specific training programme for one specific trial. Realist evaluation considers the

uniqueness of different contexts within its understanding of the world, therefore there may be some limitations in the generalisability of the programme theories and recommendations developed from this study within different contexts. It would have been useful to have conducted the study across multiple RCTs with different training and support programmes to determine whether the programme theories are more transferable. To mitigate this to an extent, the stakeholder group was composed of professionals with experience of intervention delivery and training therapists to deliver interventions as part of other rehabilitation research projects.

Finally, it is also recognised that the COVID 19 pandemic occurred at the mid point in the PhD data collection. This had an impact on what and how this could be collected. The researcher, the therapists and stakeholders had to adjust to new ways of working and an increased range of pressures and draws on their time throughout this period which has affected the study in many ways (BMA, 2022).

6.3.2 Strengths and Limitations of realist evaluation method

Realist research aims to bridge the gap between what scientists can ascertain and what is actually happening in a real-world context through theorising and testing potential causal mechanisms which can be seen through their outcomes in the real world (Williams, 2018). Although the complexity of our real world environment cannot fully be understood it is possible to uncover layers of causal explanations to enhance our understanding of how mechanisms can work and therefore develop knowledge that can be utilised more generally (Williams, 2018). Therefore, the strength of the realist approach is to combine theory building and research techniques to understand complex systems and programmes.

It has been identified that utilising realist research methods alongside RCTs can lead to a more in depth understanding of how the programmes under investigation operate (Fletcher *et al.*, 2016). Although a strength, the issue of complexity is also a limitation of realist research both in terms of the complexity of the systems being explored and the approach itself. Mechanisms are at the heart of the realist evaluation, uncovering causal explanations that can then be utilised and generalised. However, the concept of a mechanism can be difficult to understand and the issue of

what makes up a mechanism has been debated within realist literature (Westhorp, 2018; Lemire *et al.*, 2020).

Realist evaluation does not come with a standard set of research methods to employ and it is advocated that the research methods should be developed as a best fit for the research question (Pawson and Tilley, 2014). This means that the researcher needs to learn different terminology and understanding for both the realist approach and whichever research methods they choose to utilise. The use of realist evaluation is still relatively new and therefore it is still in the process of being debated and articulated.

Within this PhD there has been a frequent consideration of whether to explore breadth of knowledge versus depth of concepts. Realist research is more suited to depth (Emmel *et al.*, 2018) and therefore a deeper level of mechanistic knowledge through exploring a smaller part of the training programme in more detail rather than looking at a more broad understanding of the programme in general. One way to overcome this would be to consider utilising a middle range theory to either replace or strengthen the programme theories (Astbury, 2018a), such as the use of a behaviour change theory alongside the recommendations in Chapter 5 ([5.8.1](#)) or theories from the field of implementation science, as in the use of normalisation process theory in a recent realist review (Dalkin *et al.*, 2021).

Overall, the realist evaluation approach has been useful for this project. It allowed for a programme being delivered in the real world to be explored and to uncover theories that can be generalised and utilised in future programmes and research. It allowed for more in depth exploration of how the programme worked than a more positivistic study which would have required more controlled conditions (Morin, Olsson and Atikcan, 2021). The consideration the realist evaluation approach has for the context has been particularly useful in explaining the therapists' experiences of the training programme, whilst also allowing for explanations that can be transferable to be generated.

6.4 Interpretation

6.4.1 Implications

The programme theories that have been developed help us to understand how training and support programme for therapists delivering complex rehabilitation interventions work to enable successful intervention delivery in a research setting. This research should provide guidance for future rehabilitation trials when considering how to set up training and support to ensure the intervention is delivered as intended. Prior to this there was little understanding of what was effective in this setting and although some studies had reported what they had done, there was no exploration of why this was developed or how this worked.

The programme theories have the potential to be useful in more general rehabilitation services to introduce new ways of working, new interventions or implementation studies. However, the change in setting would need to be considered. For example, some recommendations may have been made to ensure the intervention is delivered with fidelity over time, however this might not always be the desired outcome. There might be occasions when it is preferable for an intervention to be integrated and merged into existing practice in another way. As discussed above, the change in context from a newly developed short term therapy team to an existing long term service may also need to be considered.

There have been some developments in the use of reporting systems to make implementation of complex interventions developed and evaluated through research more straightforward (O’Cathain *et al.*, 2019). There have been a number of checklists developed for this purpose including the template for intervention description and replication (TIDieR) checklist (Hoffmann *et al.*, 2014a) which was utilised for the describing the PrAISED intervention (Harwood *et al.*, 2023a). There has been some criticism that reporting checklists that, although they may describe what was done, they do not provide enough information as to what the active components of the intervention are and how to implement the interventions (Van Stan *et al.*, 2019). This has led to the development of the Rehabilitation Treatment Specification System (RTTS) (Van Stan *et al.*, 2019). Embedding training and other implementation strategies utilised during the evaluation process within reporting guidance would increase the ease of implementation.

6.4.2 Recommendations for Research

The depth of exploration of the programme theories was at time compromised to allow focus on a breadth of theories. Therefore, future work could expand on the understanding of the programme theories particularly the non-consolidated and proposed programme theories from Chapter 5 (5.4) to gain a greater understanding of the mechanisms at play and how they support different therapists in different ways.

As well as considering the programme theories in more depth, it would also be useful to consider and test the recommendations presented within Chapter 5 (5.7). The training programme was designed to support therapists delivering a multi-disciplinary long term rehabilitation intervention. It would be interesting to investigate the recommendations, their applicability and effectiveness in both similar trials and in trials that are set up in a different way, for examples short term rehabilitation delivered by a single practitioner. Utilising an implementation framework approach would be useful in terms of utilising the growing body of evidence for implementation science and to help situate this knowledge. For example, the CFIR (Damschroder *et al.*, 2009) suggests that a complex number of factors need to be understood in order for implementation of interventions in practice settings to take place. These include considerations of the culture of the setting, leadership, the staff involved and the interventions itself. The use of a framework for implementation can aid in identifying what needs to be in place to support an intervention being implemented (Moullin *et al.*, 2020). Using such a framework to further study training and support for experienced therapists in research settings would enable recommendations to be developed that align with a model that provides a standard language that allows for findings to be viewed collectively or in the context of a wider concept (Moullin *et al.*, 2020) and use a framework that has been shown to be useful in a rehabilitation setting (Morris *et al.*, 2020)

As identified early on within this piece of research, training and support methods for intervention delivery staff during randomised controls trials is not well documented which makes it hard to identify good practice and what works well in different trials.

This study has attempted to make recommendations based on the programme theories developed, however the range of interventions that make up rehabilitation or complex interventions is very broad and any recommendations may need to be tailored to each intervention. A useful strategy to build up the knowledge base in this area would be reporting guidance such as the RTTS (Van Stan *et al.*, 2019) or TIDieR checklist for interventions (Hoffmann *et al.*, 2014b). This would allow trials to share what was training and support strategies and would also be useful for implementation purposes (O’Cathain *et al.*, 2019).

6.5 Conclusion

This PhD has set out to explore how does a training programme for an experienced therapist work to enable delivery of a complex rehabilitation intervention in a research setting, to what extent and why. A three stage realist evaluation was carried out to identify, refine and consolidate programme theories to answer the research question. A number of programme theories were identified that advocated for a multi-component, flexible training programme that supported cross site relationships and team working. Programme theories were developed considering the influence of team culture, team leadership and competing priorities on the engagement with the training programme. Although this took place within a specific randomised controlled trial for a specific rehabilitation intervention, these programme theories and associated recommendations would be useful in similar research trials. With some consideration, these could be utilised further within research settings and rehabilitation settings more generally. Although there are some limitations within this study and with the realist evaluation approach, this study has added to the breadth and depth of what has been previously known and articulated in this field.

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Appendices

Appendix 1: Data Screening Form – LH

Author	Does the study include training of experienced OTs, PTs or associated support staff	Does the study include the use of a theory of learning?	Does the study report outcomes in practical therapy skills or clinical reasoning skills?	Is the study a primary research study?	Include?	Comments
Best et al 2015	No	No	Yes	Yes	No	
Tunpattu et al 2018	Yes	No	Yes	Yes	No	
Cicutto et al 2005	Yes	No	Yes	Yes	No	
Friedland et al 2000	Yes	No	Yes	Yes	No	
Forsyth and Melton 2005						Unable to obtain
Chard 200	Yes	No	Yes	Yes	No	
Steed 2010	Yes	No	No	Yes	No	
Constantine and Carpenter 2012	Yes	No	Yes	Yes	No	
Camden et al 2017	Yes	Yes	Yes	Yes	Yes	
Lemaire and Greene 2002	Yes	No	Yes	Yes	No	
Suman et al	Yes	No	Yes	Yes	No	

2015						
Shumaker 2019	No	No	No	Yes	No	
Holmes et al 2016	Yes	No	Yes	Yes	No	
Banks et al 2013	Yes	Yes - self directed learning, but did not cover the whole programe just one activity within it.	Yes	Yes	No	
Cleland et al 2009	Yes	Yes	Yes	Yes	No	
Overmer et al 2011	Yes	No	Yes	Yes	No	
Pitman and Lawdiss 2017	Yes	No	Yes	Yes	No	
Kelly and Miller 2008	No				No	
Bergkamp et al 2013	Yes	No	Yes	Yes	No	
Wilfred et al 2015	Yes	No	Yes	Yes	No	
Balogun et al 2018	Yes	No	No	Yes	No	
Russo et al 2014	Yes	No	Yes	Yes	No	
Vachon et al 2010	Yes	Yes	Yes	Yes	Yes	
Partner and	Yes	No	Yes	Yes	No	

Weissberg 2018						
Rebeck et al 2006	Yes	No	Yes	Yes	No	
Dunleavy 2015	Yes	Yes	Yes	Yes	Yes	
Sawyer et al 2014	No	No	Yes	No	No	
Richmond et al 2018	Yes	No	Yes	Yes	No	
Gee et al 2017	No	No	Yes	Yes	No	
Salbach et al 2011	Yes	No	No	Yes	No	
Stanton 2001	Yes	No	No	No	No	
Alden and Toth-Cohen 2015	Yes	Yes	Yes	Yes	Yes	
Brennan et al 2006	Yes	No	Yes	Yes	No	
White 2003	Yes	No	Yes	Yes	No	
Karlen and McCathie 2015	Yes	No	Yes	Yes	No	
Schreiber et al 2013	Yes	No	Yes	Yes	No	
Bekkering et al 2005	Yes	No	Yes	Yes	No	
Chard 2004	Yes	No	Yes	Yes	No	
Ashburner et	Yes	No	Yes	Yes	No	

al 2015						
Mast et al 2014	Yes	Yes	No	Yes	No	
Sjodhal et al 2013	Yes	Yes	No	Yes	No	
Chen et al 2009	Yes	No	Yes	Yes	No	
Davys and Beddoe 2009	Yes	No	No	Yes	No	
Liveng 2010	Yes	No	No	Yes	No	
Petty et al 2011	Yes	Yes	Yes	Yes	Yes	
Brown et al 2008	No	Yes	No	Yes	No	
Anderson 2001	Yes	No	No	Yes	No	
Asongwed et al 2009	No	No	No	No	No	
Deutscher et al 2014	Yes	No	Yes	Yes	No	
Atkins 2003	Yes	No	Yes	Yes	No	
Campbell et al 2009	Yes	No	Yes	No	No	
Tilson et al 2016	Yes	Yes	Yes	Yes	Yes	
Catalino et al 2015	Yes	No	No	No	No	
Van Peppen et	Yes	No	Yes	No	No	

al 2009						
McCluskey and Lovarini 2005	Yes	Yes	Yes	Yes	Yes	
Mackey 2002	Yes	Yes	No	Yes	No	
Silberman et al 2018	Yes	No	Yes	Yes	No	
Stathopolous and Harrison 2013	Yes	No	Yes	Yes	No	
Bourne et al 2007	No	No	No	Yes	No	
Beneciuk et al 2019	Yes	No	Yes	Yes	No	
Cardiff et al 2014	Yes	No	Yes	Yes	No	
Alsop and Llyod 2002	Yes	No	No	No	No	
Thompson 2001	Yes	No	No	No	No	
Colton et al 2017	Yes	No	Yes	Yes	No	
Richardson et al 2008	No	No	Yes	Yes	No	
Ford et al 2018	Yes	No	No	Yes	No	

Appendix 2: Data Screening Form – AL

Author	Does the study include training of experienced OTs, PTs or associated support staff	Does the study include the use of a theory of learning?	Does the study report outcomes in practical therapy skills or clinical reasoning skills?	Is the study a primary research study?	Include?	Comments
Best et al 2015	No	No	No	Yes	Exclude	
Tunpattu et al 2018	Yes	No	Yes to practical	Yes	Exclude	
Cicutto et al 2005	Yes	?	Yes	Yes	?Exclude	
Friedland et al 2000	?Yes - some	No	No	Yes	Exclude	
Forsyth and Melton 2005					Exclude	Unable to obtain
Chard 200	Not really - training was before the study	No	No	Yes	Exclude	
Steed 2010	Yes	No	No	Yes	Exclude	
Constantine and Carpenter 2012	No - after training	No	Yes	Yes	Exclude	
Camden et al 2017	Yes	Yes	Yes	Yes	Include	
Lemaire and	? Unsure	No	No	Yes	Exclude	

Greene 2002						
Suman et al 2015	Yes	No	No	No	Exclude	Protocol
Shumahr 2019	Yes	No	No	Yes	Exclude	
Holmes et al 2016	Yes	No	No	Yes	Exclude	
Banks et al 2013	Yes	? Don't think so - mention self directed learning but more as a task than a theory	Yes	Yes	?Exclude	
Cleland et al 2009	Yes	No	Yes	Yes	Exclude	
Overmer et al 2011	Yes	No	Yes	Yes	Exclude	
Pitman and Lawdiss 2017	Yes	No	No	Yes	Exclude	
Kelly and Miller 2008	?No	No	No	Yes	Exclude	
Bergkamp et al 2013	Yes	No	No	Yes	Exclude	
Wilfred et al 2015	Yes	No	?Yes	Yes	Exclude	
Balogun et al 2018	Yes	No	No	Yes	Exclude	
Russo et al 2014	Yes	No	No	Yes	Exclude	
Vachon et al 2010	Yes	?Yes (not sure as reflective learning occurs after initial	Yes	Yes	?Include	

		training)				
Partner and Weissberg 2018	Yes	No	No	Yes	Exclude	
Rebeck et al 2006	Yes	No	?	Yes	Exclude	
Dunleavy 2015	Yes	Yes	Yes	Yes	Include	
Sawyer et al 2014	No	No	No	No	Exclude	
Richmond et al 2018	Yes	No	? Clinical reasoning	Yes	Exclude	
Gee et al 2017	No	No	Yes	Yes	Exclude	
Salbach et al 2011	Yes	No	No	Yes	Exclude	
Stanton 2001	No	No	No	No	Exclude	
Alden and Toth-Cohen 2015	Yes	Yes	Yes -recognising and correcting elder speak	Yes	Include	
Brennan et al 2006	Yes	No	No	Yes	Exclude	
White 2003	Yes	No	Yes	Yes	Exclude	
Karlen and McCathie 2015	Yes	No	No	Yes	Exclude	
Schreiber et al 2013	Yes	? Not sure	No	Yes	Exclude	
Bekkering et al 2005	Yes	No	No - patient outcomes only	Yes	Exclude	

Chard 2004	Both	No	No	Yes	Exclude	
Ashburner et al 2015	Yes	No	Yes (ish)	Yes	Exclude	
Mast et al 2014	Yes	Yes	No	Yes	Exclude	
Sjodhal et al 2013	Yes	Yes	No	Yes	Exclude	
Chen et al 2009	Yes	?	? No only effectiveness of course	Yes	Exclude	
Davy and Beddoe 2009	Yes	No	No	Yes	Exclude	
Liveng 2010	No	No	No	No	Exclude	
Petty et al 2011	Yes	? Learning transition theory	?Yes	Yes	?Include	
Brown et al 2008	No	No	No	Yes	Exclude	
Anderson 2001	No	No	No	Yes	Exclude	I think this is just a survey to report on training that they had had rather than a specific training programme
Asongwed et al	No	No	No	No	Exclude	

2009						
Deutscher et al 2014	Yes	No	No	Yes	Exclude	
Atkins 2003	No	No	No	Yes	Exclude	
Campbell et al 2009	No	No	No	No	Exclude	
Tilson et al 2016	Yes	?Yes	?No	Yes	?Include	
Catalino et al 2015	No	No	No	No	Exclude	
Van Peppen et al 2009	Yes	No	No	Yes	Exclude	
McCluskey and Lovarini 2005	Yes	Yes	Yes	Yes	Include	
Mackey 2002	Yes	Yes	No	Yes	Exclude	
Silberman et al 2018	Yes	No	No	Yes	Exclude	
Stathopolous and Harrison 2013	Yes	No	No	Yes	Exclude	
Bourne et al 2007	No	No	No	Yes	Exclude	
Beneciuk et al 2019	Yes	No	No	Yes	Exclude	
Cardiff et al 2014	Yes	No	No	Yes	Exclude	
Alsop and Llyod 2002	No	No	No	No	Exclude	

Thompson 2001	?	No	No	Yes	Exclude	
Colton et al 2017	Both	No	No	Yes	Exclude	
Richardson et al 2008	No	No	No	Yes	Exclude	
Ford et al 2018	Some	No	No	Yes	Exclude	

Appendix 3: Data Extraction Form

Study characteristic 1

Author and date	Aim of the study	Study Design	Location of study	What is the sample size?	What were the inclusion/exclusion criteria
Camden et al 2017	To evaluate the short-term impact of a CoP on physical therapist's self-perceived Developmental Coordination Disorder (DCD) knowledge, skills and practice, to explore factors influencing changes in these outcomes and describe CoP impact on factors that influence physical therapist' ability to implement DCD best practice.	Explanatory sequential mixed methods design, pragmatic epistemological position. Longitudinal study with pre- and post-test quant and qual questionnaires	Canada: Quebec	41 therapists completed the final questionnaire (those who completed the final questionnaire had less experience and were less confident on the pre questionnaire than those who dropped out)	All paediatric physical therapists working in the Province who attended the 2 workshops and participated in the forum
Vachon et al 2010	The aim of this study was to empower occupational therapists (OTS) to adopt an evidence-based practice model in their work rehabilitation practice. The specific objectives were to explore the clinical decision-making processes used by occupational therapists who had taken a four-day Continuing Education (CE) program in the field of work rehabilitation, and to describe the reflective process they developed to enable themselves to become evidence-based practitioners.	Collaborative research methodology. The research group is involved in cycles of action and reflection and comes together to develop a description of their experience. Participants are then supported to try out new forms of action or behaviours. These new actions are then explored and can lead to further experimentation of new actions.	Canada: Montreal	8 OT	Therapists who offered OT services to workers with persistent pain, interested in Evidence Based Practice (EBP) and reflective practice, willing to participate in a group, at least 3 years experience.

Dunleavy 2015	The purpose of this program was to evaluate an OT CE course on Applied Behaviour Analysis (ABA) to address challenging behaviours for children with Autistic Spectrum Disorder (ASD).	A quantitative longitudinal study, with questionnaires and case scenarios, before, after and at a 4 weeks follow up to a CE course	Chicago, USA	22 OTS s and 2 OT assistants (only 10 at follow up)	OT practitioners, working with children with autism spectrum disorder in a paediatric setting. Have completed the full course
Alden and Toth-Cohen 2015	1) To analyse the impact of an educational program on occupational therapists' self-reported attitudes toward older persons using the Refined Aging Semantic Differential and self-report. 2) To evaluate participants' ability to identify and correct elderspeak. 3)To analyse the impact of an educational module on participants' confidence communicating with older persons on sensitive topics, as reported on a Likert scale. 4) To analyse the impact of an educational module on participants' confidence to teach skilful communication techniques at their place of employment using a Likert scale.	A mixed methods longitudinal study with pre and post test questionnaires	USA	6 OTS, however 2 did not complete one of the measures in its entirety	Convenience sample of OTs working with older adults, recruited through local networks

Petty et al 2010	To develop an explanatory theory of the learning transition of neuromusculoskeletal physiotherapists on a Manipulation Association of Chartered Physiotherapist (MACP) MSc course.	A naturalistic inquiry using single theory seeking design using qualitative semi-structured interviews	UK	Purposeful sampling of 11 physiotherapists to ensure a wide range of experiences and perceptions.	Physiotherapists completing the MSc in neuromusculoskeletal physiotherapy
Tilson et al 2016	To report long term outcomes regarding 1) therapists' EBP related attitudes, self efficacy, knowledge and skills and 2) therapists' adherence to participant generated, EB behaviours in patient care	Longitudinal quantitative pre, post- and 6 month follow up after the 6 month programme.	USA: Southern California	16 physical therapists	Minimum of 6 months experience, delivering patient care at least 20 hours a week and able to participate in the workshops and 1 hour of study per month.
McCluskey and Lovarini 2005	To evaluate the effect of a multifaceted intervention on EBP knowledge, skills, attitudes and behaviour of occupational therapists	A longitudinal quantitative study with pre, post and 8 month follow up of quantitative measures	Australia: New South Wales	114 Occupational therapists (51 at follow up)	Qualified, employed OTs working in New South Wales, who attended the training

Study characteristics 2

Author and date	What is the study context?	What are the measures used?	When are the measures used?	What data analysis is used?
Camden et al 2017	Paediatric rehabilitation for developmental coordination disorder	1) Self-perceived DCD knowledge questionnaire, 2) Self-perceived DCD skills questionnaire, 3) Behavioural change goal, 4) Continuing professional development (CPD) reaction questionnaire, 5) Confidence in using DCD best practice. Data was also collected on 6) physical therapist socio-demographic factors, 7) online forum use, 8) clinician information seeking style, 9) categories of behavioural change, 10) pre-scores of the CPD questionnaire.	Pre-test, before the first workshop measures - 1-6, 9 and 10, during online forum use measures - 7-8, post-test after 2nd workshop measure 1-6 were repeated.	A thematic approach was used to qualitative data. To evaluate self-perceived knowledge, skills and practice, paired t-tests were used as data was normally distributed. To evaluate potential factors influencing changes in practice ANCOVAs were used, to explore impact on behavioural changes paired t-tests were used. Other data such as demographic variables were described using means, standard deviations, frequencies and percentages.
Vachon et al 2010	Work rehabilitation for persistent pain	12, 3 hour long reflective practice sessions were videoed and transcribed, critical incidents, reflective journals and facilitator notes were kept. The meetings began more than one year after the participants had attended the workshop	Over a period of 15 months	Data was analysed using grounded theory, they were presented to the group on the 12th session for validation
Dunleavy 2015	Paediatric OTS working with ASD	1) demographic variables, 2) self efficacy measure, 3) knowledge and skills, 4) specific content concerning knowledge and use of the intervention being taught, 5) use of terminology, 6) specific knowledge and skills, 7) parent education, 8) open-ended questions about the benefits of the course, 9) an example from practice, 10) case scenario	The participants completed measures 1, 2, 3, 4, 7, 9 and 10 prior to completing the course, directly after the course they completed 2, 4, 5, 6, 8, and 10, and at a four week follow up completed, 2, 3, 4, 5, 7,	Data was computed into single variables to analyse descriptive statistics and a paired t-test to compare pre-course, post course and follow up responses. Qualitative data was analysed using open-coding based on reoccurring themes.

			8, 9	
Alden and Toth-Cohen 2015	OTs working with older adults	1) The Refined Aging Semantic Differential, 2) The Elderspeak Measurement Tool, 3) Pre- and post-surveys	The participants completed all measures prior to and after completing the course	Descriptive statistics were used to analyse the quantitative tools and content analysis was used to analyse the written responses on the surveys
Petty et al 2010	neuro musculoskeletal physiotherapists	28 audio recorded, semi-structured interviews, conducted face to face or over the telephone. Interviews were conducted iteratively alongside analysis and were carried out in three rounds.	Between 2 months and 5 years after completing the course	Transcripts were checked with the participants. Data was analysed using the learning transition theory as a framework for coding.
Tilson et al 2016	Physical therapy inpatient and outpatients	1) EBP Implementation scale, 2) Adherence to Best Practices List, 3) Modified Fresno test, 4) EBP confidence Scale, 5) EBP Beliefs Scale,	Measures 1, 3, 4, and 5 were completed immediately following the programme and 6 months later, measure 2 was completed through review of patient charts in the 6 months prior to the programme and at follow up, 6 months following the programme	Descriptive statistics were used to describe participants. One-way repeated measures ANOVA was used to identify change in each standardised measure and Chi-squared test was used to analyse the best practice list adherence

<p>McCluskey and Lovarini 2005</p>	<p>No restrictions on area of practice</p>	<p>1) a written questionnaire 2) the Adapted Fresno Test, 3) a written activity diary and 4) an assignment</p>	<p>Measures 1 and 2 were completed prior to the workshop, immediately after and 8 months after the workshop. The activity diary was completed on five occasions, for 3 weeks prior to the workshop, then bi-weekly between the workshop and follow up</p>	<p>Descriptive statistics, paired t-test for the Adapted Fresno Test and Friedman Tests were used to test hypotheses over time.</p>
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Study interventions and participant characteristics

Author and date	Intervention			Participant Characteristics			
	What is the intervention?	What learning theory is involved?	How is learning theory utilised (training methods)?	Type of therapist	Sex	Experience	Age
Camden et al 2017	The CoP consisted of 2 full day face to face workshops with a 5 month online forum in between. This was previously presented in an online module that was evaluated and identified that support was needed for implementation	Communities of Practice using theory of reasoned action and theory of planned behaviour as a combined framework	Through the online forum and workshops	Physical Therapists	41 were female	The mean experience was 15.5 years	The mean age 38.28 years old
Vachon et al 2010	A 4 day course and 15 month reflective practice group. There is a detailed description of the activity of the workshop and reflective sessions	Reflective Practice	Through the 15 month reflective practice group	Occupational Therapists	8 were female	Between 4 and 17 years experience	Between 27 and 44 years of age
Dunleavy 2015	One 3 hour training course, based on OT practitioner's experiences with challenging behaviour	Adult learning theory and social cognitive theory.	Through taught materials, videos and case discussions	Occupational therapists and occupational therapy assistants	24 were female	Between 1 and 16 years, mean 6.83 years	Between 27 and 56 years of age, mean of 39.15 years

Alden and Toth-Cohen 2015	One 90 minute face to face workshop and then 3, 30 minute online modules over the following 4 weeks.	Transformative learning theory	Through reflection on their own views, role play and discussing views	Occupational therapists	5 female, 1 male	Between 0-21 years of experience	Between 25 and 60 years of age
Petty et al 2010	200 hours of neuromusculoskeletal physiotherapy theory, 150 hours of practical skill development and 150 hours of mentored clinical practice.	Learning transition theory and social learning theory	Learning process that results in change of attitudes, knowledge and behaviour	Physiotherapists	Doesn't specify	Between 3-24 years mean 8.5 years of experience	Between 31-52 years of age mean 38.2 years.
Tilson et al 2016	4 components over 6 months. 1) acquiring leadership and electronic resources in 3 clinical practices 2) 2 day learner centred EBP workshop 3) 5 months small group work synthesising evidence 4) review and revision of a best practice list	Social cognitive theory and adult learning theory	Using two KT frameworks, - Promoting Action on Research Implementation in Health Services and the Knowledge and Action Cycle	Physical Therapists	Doesn't specify	Between 2 and 20 years of experience, mean 8.1 year	Between 27 and 51 years of age, mean 35.2 years
McCluskey and Lovarini 2005	A multifaceted approach involving a 2 day workshop on evidence based practice, post workshop email and telephone support and an optional workplace visit.	Social cognitive theory and adult learning theory	To promote learning and behaviour change by increasing self efficacy of learners	Occupational Therapists	Doesn't specify	Doesn't specify but 20 less than 5 years, 19 between 5 and 10 years and 66 over 10 years	Doesn't specify

Study outcomes

Author and date	Primary outcomes	Secondary outcomes
Camden et al 2017	There was a statistically significant increase in self-perceived knowledge, skills and confidence. There was also achievement of the behavioural change goal.	3 factors influenced change in knowledge (moral norms, intention and working in a rehabilitation centre) although these did not stand up to multivariate linear regression. There was a statistically significant on an improvement of belief about capabilities on the CPD reaction questionnaire. in relation to factors influencing the implementation of best practice for DCD, personal factors were impacted more than organisational ones.
Vachon et al 2010	OTs decision making fell into 5 modes, the mode progressed to a more positive mode as the sessions progressed which led to better implementation of the EBP. Their choice of mode depended on their reaction to difficult situations and by the importance they placed consciously or unconsciously on different sources of information. This may change from situation to situation, but some therapists favoured certain modes. Throughout the 12 weeks the therapists moved from originally using the first 4 decision making modes to using the last mode through a process of EBP empowerment. The reflective practice intervention in this study increased the therapists' ability to criticize their own practice, to open their minds up to new perspectives and to improve their problem-solving skills.	The participants had enjoyed the CE course, and wanted to take part to share their experience, learn from one another and improve their practice. They wanted to further their knowledge and put it into practice. The results also showed that legislation, pressure to conform, routine, tacit appraisal and intuition hindered the translation of research evidence into practice.
Dunleavy 2015	Statistically significant improvements were made in the self efficacy measure (2) between pre-course and post course, although this deteriorated slightly at follow up. Statistically significant improvement was also made in knowledge and skills measure (3) between pre-course and follow up, the specific content knowledge and skills measure (4) between pre -course and post course for knowledge and between pre-	The case study was also analysed in terms of how they would approach the situation differently following the training, there were little in the way of consistent changes in approach across the group and 21% said they would approach it the same.

	course and follow up for skills and for terminology (5).	
Alden and Toth-Cohen 2015	Peoples views of older people were generally positive, 3 peoples views were more positive following the course, 2 were slightly more negative and 1 was very negative.	Slight improvement in elder speak, confidence in ability to identify and correct elderspeak improved (results may have been skewed by 2 people not completing the questionnaire in its entirety). The participants reported an increased confidence in the ability to identify and correct elder speak in their clinical settings
Petty et al 2010	The paper describes a process of learning from antecedent conditions of carrying out routine clinical practice, hidden from scrutiny, they have expectations that the teaching will enhance their knowledge and skills through didactic teaching. The learning happens through a learning contradiction where they critically evaluate their practice, they will react to this by embracing change or defending practice, depending on a number of moderating factors, this leads to a critical understanding of their practice knowledge, improved patient centred practice and learning in and from practice.	
Tilson et al 2016	Long term improvements in EBP self efficacy and behaviour as reported in the EBP Confidence scale and EBP Implementation Scale, showed statistically different between pre and post and pre and follow up but no major change between post and follow up. EBP knowledge and skills, as reported on the Modified Fresno Test, showed no immediate improvement but improved between post and 6 month follow up. Self reported behaviours as on the EBP implementation scale improved between pre and post but not on attitudes to EBP as reported. The EBP	Review of case files failed to identify improved adherence to best practice list

	Beliefs Scale were and remained positive with no change over the course of the study.	
McCluskey and Lovarini 2005	There were statistically different scores on the Adapted Fresno test, indicating an improvement in knowledge between pre and post workshop testing, there was not a further significant improvement at follow up but the scores were slightly higher. Based on the self report questionnaire there was a statistically significant improvement in skills and confidence and this was also maintained at follow-up.	There was no improvement in the activity diaries, indicating that the therapists were not engaged in any more EBP activities than they were prior to the workshop

Appendix 4: Assessment of Quality

JBI checklist for qualitative research

Author and date	Is there congruity between the stated philosophical perspective and the research methodology?	Is there congruity between the research methodology and the research question or objectives?	Is there congruity between the research methodology and the methods used to collect data?	Is there congruity between the research methodology and the representation and analysis of data?	Is there congruity between the research methodology and the interpretation of results?	Is there a statement locating the researcher culturally or theoretically?	Is the influence of the researcher on the research, and vice-versa, addressed?	Are participants, and their voices, adequately represented?	Is the research ethical according to current criteria or, for recent studies, and is there evidence of ethical approval by an appropriate body?	Do the conclusions drawn in the research report flow from the analysis, or interpretation, of the data?
Vachon et al 2010	Yes	Yes	Yes	Yes	Yes	No	Partially	Yes	No	Yes
Petty et al 2010	Yes	Yes	Yes	Yes	Yes	Yes - brief	Yes	Yes	Yes	Yes

JBI checklist for quasi-experimental studies

Author and date	Is it clear in the study what is the cause and what is the effect' (i.e. there is no confusion about which variable comes first)?	Were the participants included in any comparisons similar?	Were the participants included in any comparisons receiving similar treatment/care, other than the exposure or intervention of interest?	Was there a control group?	Were there multiple measurements of the outcome both pre and post the intervention/exposure?	Was follow up complete and if not, were differences between groups in terms of their follow up adequately described and analyzed?	Were the outcomes of participants included in any comparisons measured in the same way?	Were outcomes measured in a reliable way?	Was appropriate statistical analysis used?
Duleavey 2015	Yes	Yes	N/A	No	Yes	Yes	N/A	Yes	Yes
Tilson et al 2016	Yes	Yes	N/A	No	Yes	Yes	N/A	Yes	Yes
McCluskey and Lovarini 2005	Yes	Yes	N/A	No	Yes	Yes	N/A	Yes	Yes

Mixed methods appraisal tool

		Qualitative questions						Quantitative questions					Mixed Methods questions				
Author and date	Are there clear research questions?	Do the collected data allow to address the research questions?	Is the qualitative approach appropriate to answer the research question?	Are the qualitative data collection methods adequate to address the research question?	Are the findings adequately derived from the data?	Is the interpretation of results sufficiently substantiated by data?	Is there coherence between qualitative data sources, collection, analysis and interpretation?	Is the sampling strategy relevant to address the research question?	Is the sample representative of the target population?	Are the measurements appropriate?	Is the risk of nonresponse bias low?	Is the statistical analysis appropriate to answer the research question?	Is there an adequate rationale for using a mixed methods design to address the research question?	Are the different components of the study effectively integrated to answer the research question?	Are the outputs of the integration of qualitative and quantitative components adequately interpreted?	Are divergences and inconsistencies between quantitative and qualitative results adequately addressed?	Do the different components of the study adhere to the quality criteria of each tradition of the methods involved?
Alden and Toth - Cohen 2015	Yes - Aims	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes - but small	Yes	Yes	Yes	Not specified	Yes	Yes	Yes	Yes
Camden et al 2017	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	N/A	Yes

Appendix 5: Stakeholder consultation discussion guides

Initial stakeholder consultation discussion guide

- Introductions
- Presentation of realist methods and research process
- Presentation of training programme and scoping review findings
- Discussion around potential themes of influence including
 - Ideas from scoping review – reflection, social learning
 - Team influence
 - Professional experience of therapists
 - Us of ongoing mentoring and support
 - Leadership
 - Timeliness of training
- Prioritise themes

Final stakeholder consultation discussion guide

- Introductions
- Presentations of findings from realist evaluation
- Presentation of potential recommendations
- Questions for stakeholder group
 - What are your initial thoughts?
 - Is there anything missing?
 - Would these work for studies you have been a part of?
 - What would be your top 3 recommendations?
 - Do you think there is too many?
 - Is there a better term for training and support programme?

Participant Identifiable Data Form – Clinician Interviews

Promoting Activity, Independence and Stability in Early Dementia and Mild Cognitive Impairment (PrAISED 2)

Date:

.....

Participant's Details

Title: Mr / Mrs / Miss / Ms / Dr / Prof / Rev /

First Name:

Preferred name (if different):

Surname:

Gender: Male Female

Ethnicity:

Please choose one option that best describes your ethnic group or background:

White

English / Welsh / Scottish / Northern Irish / British

Irish

Gypsy or Irish Traveller

Any other White background, please describe:

.....
...

Asian / Asian British

Indian

Pakistani

Bangladeshi

Chinese

Any other Asian background, please describe:

.....
...

White Mixed / Multiple ethnic groups

- White and Black Caribbean
- White and Black African
- White and Asian
- Any other Mixed / Multiple ethnic background, please describe:

.....

Black / African / Caribbean / Black British

- African
- Caribbean
- Any other Black / African / Caribbean background, please describe:

.....

Other ethnic group

- Arab
- Any other ethnic group, please describe:

.....

Age Range:

Please choose which option best describes your age range

- 20-29 years
- 30-39 years
- 40-49 years
- 50-59 years
- 60-69 years

Work experience details

Which professional group are you in?

- Physiotherapist
- Occupational Therapist
- Support Worker

At which site do you work?

- Nottingham
- Derby
- Lincoln

- Bath
- Oxford/Buckinghamshire
- Other, please specify

.....

How long have you been involved in Praised?

.....months

How many PrAISED participants have you worked with?

.....participants

How long have you worked in your current profession?

- 0-1 year
- 1-5 years
- 5-10 years
- 10-15 years
- 15-20 years
- 20+ years

How long have you been in your current role?

- 0-1 year
- 1-5 years
- 5-10 years
- 10-15 years
- 15-20 years
- 20+ years

In which areas of clinical practice have you worked (tick all that apply)?

- Older Adults Mental Health

Older Adults Physical Health

Other, please specify

.....

In which clinical settings have you worked?

Acute hospital care

Rehabilitation hospital care

Community Rehabilitation

Community Other, please specify

.....

How long have you worked with people with a diagnosis of dementia?

0-1 year

1-5 years

5-10 years

10-15 years

15-20 years

20+ years

Personal data consent (as on consent form)

I consent to the storage including electronic, of personal information for the purposes of this study. I understand that any information that could identify me will be kept strictly confidential and that no personal information will be included in the study report or other publication.

.....

Participant Printed Name

Participant Signature

Date

.....

Researcher Printed Name

Researcher Signature

Date

Appendix 7: Interview Schedule

1. What aspects of the training and delivery of PrAISED have a positive or negative impact on your motivation?
2. What could be improved in the training to boost your confidence to deliver the intervention?
3. What support have you had to take part in the PrAISED programme
 - a. How supportive is your PrAISED clinical team?
 - b. How supportive are your colleagues outside of PrAISED?
4. How useful has contact with the University been? What in particular has been helpful?
5. How have you found the training you received in PrAISED (e.g. initial training and ongoing support, like the teleconferences)?
6. Did you find the training met your needs in the way that you like to learn? Can you tell me how this works for you?
7. Did you feel you had enough training to effectively deliver the intervention?

Appendix 8: Video Observation Checklist

Therapist Number:

Site:

Profession:

Activities Present:

Assessment:

Exercise:

Goal Setting:

Domestic Activities:

Leisure Activities:

Principle	Description	Examples	NO	PM	FM	MO	N/A
Intensive	Physical activity must be performed for at least 150 minutes per week. Participants may require more or less intensive support to achieve this.	Does therapist ask about activity times or amount of activity done over the last week? Do they discuss and agree with participant level of intensity of support required and frequency of next visits? Do they discuss activity plans for the upcoming week?					
Tailored	The therapist must work with participant to select and tailor physical exercise / activities that will be of most benefit and interest	Does the therapist make the participant feel they are in control of the activities to be done? For example do they ask whether the participant wants to do the activity? Does the participant seem to enjoy doing it? Is the participant given choices around exercise/activity? Does the therapist make recommendations on activity/exercise based on what the participant has said, or what they have observed the participant do?					
Challenging	The tasks must be challenging	Are the tasks challenging enough for participant, but still within their capabilities (i.e. realistically achievable)?					
Progressive	The tasks must be progressive	Is the therapist increasing the challenge of the task progressively (even within the same session)? Do they discuss progressing the tasks, now or in the future?					
Promoting / improving independence	The tasks must promote or improve independence (ability to complete tasks without dependence on others)	Is the therapist asking the participant to carry out activities independently or working towards them being independent? (e.g. personal, domestic or leisure ADLs, navigating the kitchen, making tea). Do they discuss how the participant could be more					

		independent or set goals for them to do activities independently?					
Supporting in ADLs or exercise	The therapist must work with participants to find ways in which the participant can do daily tasks and activities	Does the therapist discuss strategies (e.g. photos, instructions, carer input) with participant to enable them to do their ADLs or exercise? Do they train / explain them how to do them? Do they use a clear language and practical example to support them?					
Supporting dual-tasking	The therapist must challenge the participant to complete two exercises at once	Does the therapist ask the participant to do tasks where the mind and the body work at the same time (e.g. walking and counting)? This could be either with the exercise programme or through a functional activity.					
Accessing the environment	The therapist must consider activities that promote community integration	Does the therapist ask about, advises on, suggests or gives information on activities outside the home? For house bound participants does the therapist discuss full access of the person's property? Does the therapy session involve leaving the home?					
Embracing positive risk-taking	Tasks must encourage positive risk-taking and only be discouraged if safety could be compromised	Does the therapist encourage the participant to do tasks where there is a degree of calculated risk? Does the therapist expose the participant to unnecessary risk of harm? Does the therapist discuss positives and negatives of doing more risky activities? Does the therapist use the risk enablement paperwork? Does the therapist consider risk management strategies or contingency plans, when discussing more risky activities?					
Using Self-Determination Theory principles	Visits must respond to the human needs for competence, autonomy and relatedness	Does the therapist give unconditional support and encouragement to boost the participant's confidence? Does the therapist empower the participant, by giving them control over the tasks and other aspects of the programme? Does the therapist use the 12 motivational strategies provided by PRAISED team?					
Assisting in	Therapist must assist the	Does the therapist find ways to integrate the activities into the					

habit formation	participant to develop a habit of being physically active	participant's routine? Do they check that the participant is forming a habit of doing physical activity? Does the therapist use the habit forming strategies provided by PrAISED team?					
Using tapering to promote self-management	Therapist must grade the amount of support and supervision provided to participant, to make them more responsible of the activity as time progresses	Does the therapist discuss and agree with participant on the level of intensity of support required to do the tasks and the frequency of next visits? Is the therapist progressively reducing support (even within the session)? Does the therapist discuss reducing the level of support as programme progresses? Does the therapist use the tapering strategies provided by PrAISED team?					
Promoting long-term engagement	The therapist must develop intrinsic motivation to ensure that the participants remains active over time ⁺	Does the participant seem to enjoy the activities that the therapists are doing with them? Does it seem that the participants might be able / willing to keep doing the activities over time? Do the therapist work to ensure this, by exploring participant's views?					
Goal Setting	The therapist must set goals with the participant that are specific to their interests, functional and active	Does the therapist discuss goal setting with the participant? (sets new goals, review existing goals, adapt/change goals) Does the goal or action plan associated with it lead to the participant doing regular active tasks?					

Appendix 9: Programme theory Development Table 1

Relevant Programme Theory: Overall Training Programme			
<p>Initial Programme Theory: If the PrAISED therapists attend and engage in multiple elements of the PrAISED training programme (C), then they will be confident, competent and consistent in delivery of the PrAISED programme (O), because they will assimilate the learning into the intervention delivery through reflective practice and social learning with the PrAISED community (M).</p> <p>Other contexts such as previous experience, hours of PrAISED delivery, personal causation (C), may affect how the therapists engage with the training programme (M) and therefore how they deliver the PrAISED programme (O).</p>			
CMO theme: Multiple opportunities for support			
Level: Individual			
Contexts: Challenges arise due to the complexity of intervention and nature of participant group	Mechanisms: Multiple opportunities for support (resources) and therapist feel supported (reasoning)	Outcomes: Confidently deliver intervention as intended	Resulting CMOC statement: If challenges arise due to complexity of the intervention and the complex nature of participant group, then the therapists are able to confidently deliver the intervention as intended, because there are regular, multiple opportunities available for support (teleconferences, email, access to trainers and other therapists) and the therapists feel supported
Notes: Is it because there is a challenge or is because it is complex patient group and intervention Not sure that support is the right word – support could mean, talking things through, giving advice, aiding reflection, correcting misconceptions		Sources of supporting evidence: T12 node: access Ref 1 T3 node 20 T16 node: access T12 node: CID	Supporting Quotes: ‘the fact that we identified a learning need the other day as a Lincoln team and you guys as therapists came out earlier this week, that was really positive. I think that was a really good learning environment that we had. We learnt an awful lot more. So I think that’s been really good.’ (T12 node: accessibility Ref 1)
CMO theme: Manual			
Level: Individual			

Contexts: Uncertainty about the intervention or particular participants	Mechanisms: Refer to manual to refresh knowledge (independently access the information) (resource)	Outcomes: Therapists can find the information and adapt the intervention	Resulting CMOC statement: If the therapist is uncertain about the intervention or particular participants, then the therapist can find the information, and adapt the intervention because they can refer to the manual and refresh their knowledge of the intervention (independently able to access information)
Notes:		Sources of supporting evidence: T18 node: manual ref 1 T16, T19 node: manual, T18 node: revisit concepts	Supporting Quotes: 'found the folder really helpful with all the useful, all the information there, so I found at the start when I wasn't sure I'd just go through that.' (T18 node: manual ref 1)
CMO theme: Consolidate knowledge			
Level: Individual			
Contexts: Return to training following delivery of the intervention	Mechanisms: The opportunity to reflect on delivering the intervention and 'check' they are delivering it correctly	Outcomes: Consolidate their knowledge and keep fidelity of the intervention	Resulting CMOC statement: If the therapist has time to deliver the intervention in practice and come back to training, then they can consolidate their knowledge and keep fidelity of the intervention because they have had the opportunity to reflect on delivering the intervention and 'check' they are delivering it correctly
Notes: Is check the right word - what is the response to this		Sources of supporting evidence: T1 node: reflection T8 node: reflection	Supporting Quotes: 'I think that with any training. When you do a block of it you almost want to then come back when you've had time to reflect on it don't you, and do a bit more and consolidate it in your head.' (T1 node: Reflection)
CMO theme: Support outside of the site team			
Level: Individual			

Contexts: Lack of opportunities for support in the site team	Mechanisms: Multiple opportunities for support from the training team and other sites	Outcomes: The therapist will feel supported	Resulting CMOC statement: If there is a lack of opportunities for support within the site therapy team, then therapist will still feel supported, because there are regular, multiple opportunities for support from training team and other therapy sites
Notes: Is feeling supported part of the mechanism and a different outcome apply ? time, geographical location and communication structure		Sources of supporting evidence: T20 node: team work	Supporting Quotes: 'I'd also agree that if you're doing it solo, which he is, that although he can bounce off us, he doesn't have another rehab support worker to bounce off. So for him maybe the resources offered by Nottingham in terms of the teleconferencing might be a nice resource for him to tap into.' (T20 node: Team Work)
CMO theme: Anxiety about research procedures			
Level: Individual			
Contexts: Therapist uncertain about research procedures and expectations	Mechanisms: they feel responsible for the success of the study and under pressure to not make a mistake	Outcomes: They can become anxious	Resulting CMOC statement: If the therapist is uncertain about research procedures and research expectations, then they can become anxious Because they feel responsible for the success of the study and under pressure to not make a mistake
Notes: ? is anxiety part of mechanism		Sources of supporting evidence: T20, T5 node: overwhelmed	Supporting Quotes: 'I felt very much, I felt a big responsibility for having to get it right because it's research and because this is other people's lives and you're wanting to make a difference. So I felt a lot of the burden was on us initially.' (T20, node: Overwhelmed)
CMO theme: Unclear instruction on resources			

Level: Individual			
Contexts: the therapists receive resources without enough instruction or support from the training team	Mechanisms: they are unclear about whether they are meeting expectations	Outcomes: Their confidence is reduced	Resulting CMOC statement: If the therapists receive resources without enough instruction or support from the training team, then their confidence is reduced because they are unclear about whether they are meeting expectations
Notes: ? intervention, research or organisation of intervention		Sources of supporting evidence: T20 node: accountability	Supporting Quotes: 'I think it all came through in lots of spreadsheets and stuff, but to be honest when the spreadsheet comes through like that, you might look at it and just go urgh because it's a bit of a turn off. And think to yourself that looks like it makes sense and there's a trust element in there. But I think it would be useful for somebody maybe for the non-research side of things, so maybe from either the financial side or the programme structure side, to explain that so that those expectations of we can really make sure that we're meeting those.' T20, node: accountability
CMO theme: Keeping up to date with practice			
Level: Individual			
Contexts: There is a lot to learn to stay up to date	Mechanisms: Need to stay up to date and feel responsible for participant safety	Outcomes: It is hard to feel you have done it all	Resulting CMOC statement: If the therapist is open to learning and there is a lot to learn, then it is hard to feel you have done it all because staying up to date with practice and feel responsible for safety of individual participants
Notes:		Sources of supporting evidence:	Supporting Quotes:

<p>? is safety the right word</p> <p>? up to date with intervention, research, topic (dementia, exercise, falls)</p>	<p>T1 node: confidence in delivery</p>	<p>'There's a lot in this programme to learn and to assess and that's always hard to feel like you've done it all.' T1 node: confidence in delivery</p>
<p>Unexplored contexts</p> <p>Team leadership</p> <p>Team culture</p> <p>Previous experience</p> <p>Hours of practice</p> <p>Timeliness of training</p> <p>Therapist's personal causation</p>		

Relevant Programme Theory: Initial Training Workshop

Initial Programme Theory: If the site team has suitable leadership and team culture (C), **then** the site team will be Confident, competent and consistent in delivery of the PrAISED programme (O) **because** the individual therapists will be more likely to attend and engage in the training programme (M).

If the PrAISED therapists are attend and engage in multiple elements of the training programme with other team members (C), **then** they will experience a supportive training environment and deliver effective team work (O), **because** they will develop relationships with team members (M).

CMOC theme: Cross professional role working

Level: Individual, team

Context: the intervention has been designed to be delivered by multi-professionals (OTs, PTs, and RSWs) and the training does not discriminate between professions and the site therapy teams are well staffed	Mechanism: There is not enough detail in the training or time for practice	Outcome: therapist will maintain the boundaries of their professional role (rather than delivering outside their profession)	Resulting CMOC Statement: If the intervention has been designed to be delivered by multi-professionals (OTs, PTs, and RSWs) and the training does not discriminate between professions and the site therapy teams are well staffed, then the therapist will maintain the boundaries of their professional role (rather than delivering because there is not enough detail in the training or time for practice those different skills
Notes: there is something else keeping them from doing this, competence of their own skills and respect of the other professionals skills	Supporting Evidence: T12 node: CID T19 node: overwhelmed, T 3 node: initial training		Supporting Quote: 'So I guess it's hard because it was for both physios, OTs and support workers. So it is hard to capture what everyone needs. So it was a good reminder of Tinetti, Berg and strength, but for me that was something I

			probably could have skipped. But I really wanted to know more about cognition and motivation and prompting' T19 Node: overwhelmed
CMOC theme: Cross site training			
Level: Wider PrAISED team			
Context: Therapists from different sites attend the same initial training workshop	Mechanism: they can share ideas and experiences (social learning)	Outcome: The therapists can learn from each other's experiences	Resulting CMOC Statement: If therapists have training across multiple sites, then the therapist can learn from each other's experiences, because they can share ideas and experiences (social learning)
Notes: This was discussed in terms of the initial training but may be relevant to all training		Supporting Evidence: T5 node: 5R and social learning T7 Node: 5R and Social learning	Supporting Quote: 'But it's good because everybody's together and you can throw ideas about, you know, in that sense.' T7 node 5R
CMOC theme: Overwhelmed			
Level: Individual			
Context: there is a lot of information in the training, manual or a lot of documentation	Mechanism: the therapist feels uncertain and overwhelmed	Outcome: the therapist may become overwhelmed when delivering the intervention	Resulting CMOC: Statement: If there is a lot of information in the training, manual or a lot of documentation, then the therapist may become overwhelmed, because the therapist feels uncertain and overwhelmed
Notes: ? mechanism and outcome the same – what are they doing at this time? – accessing support?		Supporting Evidence: T1 node: manual T13 node: overwhelmed T13 node: overwhelmed	Supporting Quote: 'so at the end of the three days it was like, by the way here's your documentation, we've got some copies of it at the back, we had that memory stick to go away with and

		T18 node: overwhelmed	we suddenly had all this documentation that we were like oh gosh did we talk about this?' T 13 node overwhelmed
CMOC theme: Training alongside team members			
Level: Site team			
Context: Therapists train alongside site team members	Mechanism: Therapists start to get to know colleagues and how they like to work (social learning).	Outcome: Establish working relationships	Resulting CMOC Statement: If therapists have training alongside site team members, then this starts to establish working relationships, because the therapists start to get to know their colleagues and how they work
Notes:		Supporting Evidence: T4 node: social learning T21 node: team working	Supporting Quote: 'I got to meet them before we actually started the job as well. So obviously even though we were training and when it was breaks and things like I got a chance to meet them and got to know what they do.' T4 node social learning
CMOC theme: Research processes			
Level: Site team			
Context: lack of information within the initial training about establishing site procedures for research and service delivery when sites are being set up	Mechanism: ?	Outcome: frustration and difficulties implementing the intervention initially	Resulting CMOC Statement: If there is a lack of information within the initial training about establishing site procedures for research and service delivery when sites are being set up, then this can lead to frustration and difficulties implementing the intervention initially
Notes:		Supporting Evidence:	Supporting Quote:

Need to know more	T21 node: team work, T5 node: team work		‘I think on the ground delivery of it, I think because it’s run at different sites, I know going straight from the training then to working in Lincoln we hadn’t really thought about some of the logisti5 of where we were going to store information, how we were going to share information, the documentation side of it and I think there was felt a bit of frustration that that could have been covered at the training.’ T21 node team work
CMOC theme: Therapist experience			
Level: Individual			
Context: Experienced therapist is being trained in a new intervention	Mechanism: they can use their past experience to reflect on using the intervention during the training	Outcome: they can more effectively engage with the training	Resulting CMOC Statement: If the experienced therapist is being trained in a new intervention, then they can more effectively engage with the training, because they can use their past experience to reflect on using the intervention during the training.
Notes:		Supporting Evidence: T13 node: reflection	Supporting Quote: ‘I’ve just been involved in another research study that had the same parameters on the MoCA Score as PrAISED, and we actually had some people in the group that were actually quite cognitively struggling. And I was imagining my participants from that and how they would be in PrAISED’ T13: node reflection
Unexplored Contexts: Numbers of therapists in training			

Unexplored Mechanisms:

Investing in the intervention

Understanding of study materials

Relevant Programme Theory: On-site group mentoring			
Initial Programme Theory: If the PRaised therapists are attend and engage in the on site mentoring (C), then this would increase their competence and confidence, and enable deliver of the intervention with greater fidelity (O) because they will have time to reflect on the interventions concepts and how they reflect on their cases and because they will feel a sense of accountability as the feel they are under surveillance.			
CMOC theme: Responsiveness of training team			
Level: Site Team			
Context: the site identify a learning need, communicate that to the training team and participate in a face to face mentoring session	Mechanism: the training team are adaptable, responsive and timely	Outcome: learning needs are met, the therapists remain motivated and there is a positive learning environment	Resulting CMOC: Statement: If the site identify a learning need, communicate that to the training team and participate in a face to face mentoring session, then the learning needs are met, the therapists remain motivated and there is a positive learning environment, because the training team are adaptable, responsive and timely
Notes:		Supporting Evidence: T12 node: access, 20, learning environment T18 node: access T20 node: access T13 node: revisit concepts	Supporting Quote: 'the fact that we identified a learning need the other day as a Lincoln team and you guys as therapists came out earlier this week, that was really positive. I think that was a really good learning environment that we had. We learnt an awful lot more. So I think that's been really good.' T 12 node: Access
Unexplored Mechanisms: Opportunity for reflection Relationships with trainers Accountability/surveillance			

Relevant Programme Theory: Monthly Remote Group Mentoring			
Initial Programme Theory: If the PrAISED therapists are engage in the ongoing monthly group mentoring (C), then this would increase their competence and confidence and enable them to deliver the intervention with a greater level of fidelity (O) because they will have time to reflect on the interventions concepts and how they reflect on their cases and because they will feel a sense of accountability as the feel they are under surveillance.			
CMOC theme: Time constraints			
Level: Individual			
Context: time constraints on the therapists (days of work, therapy visits)	Mechanism: ?	Outcome: the therapist will not access the monthly group mentoring	Resulting CMOC Statement: If there are time constraints on the therapists (days of work, therapy visits), then the therapist will not access the monthly group mentoring
Notes: ? prioritisation of the training, individual choice as oppose to a site team decision		Supporting Evidence: T1 node: access T21 node: access T20 node: access T3 node overwhelm T4: node access and overwhelm T7 node: access	Supporting Quote: 'I must admit we don't utilise that very much, but it's mostly because of time constraints. But I know it's there. I know it is in the diary, but actually getting there and logging in to do it is quite difficult to do because the wards will probably always take a priority over that.' T20 node: access
CMOC theme: Convenience of virtual meetings			
Level: Individual or ? All sites			
Context: monthly group mentoring is virtual (telephone or video call)	Mechanism: ?	Outcome: it is more time efficient and more therapist will be able to attend	Resulting CMOC Statement: If the monthly group mentoring is virtual (telephone or video call), then it is more time efficient and more therapist will be able to attend

Notes:		Supporting Evidence: T1 node: access		Supporting Quote: 'think it is the opportunity to talk to each other about what it is you're doing. That teleconference is really good, but you can't always dial into it. And we don't have the face to face meetings like we did in the feasibility, which is better from a time point of view, but you lose that. It's about you need the team bit of it I think don't you - you want to feel that. But the teleconferences make more sense from a time point of view.' T1 node access	
CMOC theme: Cross site attendance					
Level: All sites					
Context: there is attendance from cross site therapists		Mechanism: they can compare what is happening at different sites, can reflect on similar situations, challenges and solutions		Outcome: therapists can share best practice, learning and gain reassurance	
Resulting CMOC Statement: If there is attendance from cross site therapists, then the therapists can share best practice, learning and gain reassurance, because they can compare what is happening at different sites, can reflect on similar situations, challenges and solutions					
Notes:		Supporting Evidence: T6 node: accessibility T13 node: 5R T 13 node: reflection, revisit concepts T6 node: accessibility and 5R T19 node: 5R T12 node 5R		Supporting Quote: 'I think the teleconference is a really good way of sharing best practice and learning across all the different sites.' T12 node 5R	
CMOC theme: Comparing selves negatively with other sites					

Level: Individual/ Site team			
Context: therapists from other sites are doing something different (? Feeling overwhelmed in general, something different about the individual)	Mechanism: the therapists question what they are doing (comparison, reflection) and feel uncertain/incompetent	Outcome: overwhelming	Resulting CMOC Statement: If therapists from other sites are doing something different, then this can be overwhelming, because the therapists question what they are doing (comparison, reflection) and feel uncertain/incompetent
Notes: what is the situation that makes one person feel overwhelmed or have a negative reflection that is different from the positive experience in the CMOC THEME: above		Supporting Evidence: T1 node: 5R	Supporting Quote: 'I think in terms of talking to the other sites, that's helpful but can be quite overwhelming, because people are doing things differently and then you're like oh we're not doing it like that. Yeah, that's a good idea but should we be doing that?' T1 node 5R
CMOC theme: Multiple opportunities for support			
Level:			
Context: therapists find the group mentoring too time consuming (don't value it)	Mechanism: there are multiple ways to access support (access to trainers or another site via email)	Outcome: will seek support through emails	Resulting CMOC Statement: If therapists find the group mentoring too time consuming, then they will seek support through emails, because there are multiple ways to access support (access to trainers or another site via email)
Notes: there are multiple ways to access support (access to trainers or another site via email)		Supporting Evidence: T7 node: accessibility and 5R	Supporting Quote: 'I suppose they're time-consuming. And a lot of them, there's no problems. They're just niggling things. I would have thought the best way forward with that, I suppose it's difficult

		<p>really. I don't know. I suppose I shouldn't really comment because I've only done the odd one. I always think if you've got a problem maybe you could contact somebody in Nottingham or wherever and say look, I've come across this. Or an email: how do I handle it; what do you want me to do.' T7 Node 5R</p>
<p>Unexplored Contexts: Access to the group mentoring</p> <p>Unexplored Mechanisms: Relationships with trainers Accountability/surveillance</p>		

Appendix 10: Research Ethics Committee Approval letter



**University of
Nottingham**
UK | CHINA | MALAYSIA

**Faculty of Medicine & Health Sciences
Research Ethics Committee**

Faculty Hub
Room E41, E Floor, Medical School
Queen's Medical Centre Campus
Nottingham University Hospitals
Nottingham, NG7 2UH

Email: FMHS-ResearchEthics@nottingham.ac.uk

15 January 2021

Louise Howe
PhD Student in Health Sciences
School of Health Sciences
Faculty of Medicine and Health Sciences
B Floor, Medical School Block
Queen's Medical Centre Campus
Nottingham University Hospitals
NG7 2UH

Dear Ms Howe

Ethics Reference No: FMHS 125-1120– please always quote	
Study Title: A realist evaluation of a training programme to enable therapists to implement a complex rehabilitation intervention in a research setting.	
Chief Investigator/Supervisor: Rowan Harwood, Professor of Palliative and End of Life Care, School of Health Sciences	
Lead Investigators/student: Louise Howe, PhD student, School of Health Sciences	
Other Key investigators: Pip Logan, Professor of Rehabilitation Research, Vicky Booth, Assistant Professor, Division of Rehabilitation, Aging and Wellbeing, School of Medicine	
Proposed Start Date: 04.01.2021	Proposed End Date: 04.01.2022

Thank you for submitting the above application which was reviewed on the 27 November 2020 and the following documents were received:

- FMHS REC Application form and supporting documents version 1.1: 25.10.2020

These have been reviewed and are satisfactory and the project is approved.

Approval is given on the understanding that:

1. The protocol agreed is followed and the Committee is informed of any changes using a notice of amendment form (please request a form).
2. The Chair is informed of any serious or unexpected event.
3. An End of Project Progress Report is completed and returned when the study has finished (Please request a form).

Yours sincerely

Dr John Williams, Associate Professor in Anaesthesia and Pain Medicine
Chair, Faculty of Medicine & Health Sciences Research Ethics Committee

Appendix 11: Realist Interview Schedule

Initial Questions

Do you have any questions before we start?

Could I start by asking you to introduce your self and what your professional experience of working with people with dementia is?

Buy in

So I wondered if we could start by asking you how you came to be part of the PrAISED study?

- So working was important to you?

There is this idea that understanding the background and evidence of an intervention is important in order to engage in a training package or new intervention, do you think there is any truth to that?

- *What is the important part of that do you think?*
- *How do you think that works?*

Social Learning

I have been reading a lot about social learning, this concept suggests that it is helpful to learn alongside others, through shared ideas and experiences, do you think this rings true for you?

- *What is the important part of that do you think?*
- *How do you think that works?*
- Where does this happen for you in the PrAISED training?

There is a theory that discussing cases, or practising an intervention in training, with others, can develop confidence and understanding in an intervention, do you think there is value in this?

- *What is the important part of that do you think?*
- *How do you think that works?*

I want to think about ongoing training and support for a bit, such as the therapist teleconferences, on site meetings and the conference

One idea is that through regular meetings, relationships with peers and training staff are developed and this can influence whether therapists effectively use ongoing training, do you think there is any truth in that?

- Some of the suggestions about how this work are

- Safe place
- Shared experience
- Relationships/trust
- Being part of a larger study

- *What is the important part of that do you think?*
- *How do you think that works?*

There was a suggestion that your team may influence whether therapists engage in the ongoing training, do you think there is any truth in that?

- *What is the important part of that do you think?*
- *How do you think that works?*

Another suggestion has been made that site leadership can influence therapists to engage in the ongoing training, do you think there is any truth in that?

- *What is the important part of that do you think?*
- *How do you think that works?*

Reflective Practice

I am wondering if it is important to you that PrAISED fits with your professional experience and values?

There is this idea that when learning a new intervention. You need time to think about what you're learning and how it relates to your previous experience. Do you think there is any truth in that?

- *What is the important part of that do you think?*
- *How do you think that works?*
- How do you find reflection works best for you? For example some people prefer to reflect out loud, in a group, by yourself?
- Do you use reflection in the moment or is it something you prefer to do afterwards?

There is another suggestion that over time, with experience of more cases, you are better able to adapt and apply an intervention to more difficult cases, does this ring true for you?

- *What is the important part of that do you think?*
- *How do you think that works?*

Do you think the training programme, the teleconferences or conference for example have enabled this reflective practice?

- *What is the important part of that do you think?*
- *How do you think that works?*
- *What would make it better?*

Monitoring

I notice that some people join the monthly teleconferences and some people don't, do you have any ideas about that?

There is this idea that the ongoing elements of the training package, such as the teleconferences, site visits and the conference, are a way of monitoring what is being delivered, do you think there is any truth to that?

- Do you think that is helpful or unhelpful?
- *What is the important part of that do you think?*
- *How do you think that works?*

Do you think this monitoring occurs between sites or just between trainers and sites?

- Do you think this is helpful or unhelpful?
- *What is the important part of that do you think?*
- *How do you think that works?*

What are the negative and positive effects of this?

Do you think there is anything else about how the training works that has been important to you?

- *What is the important part of that do you think?*
- *How do you think that works?*

Appendix 12: Process Information

Therapist demographics and training data

Therapist	Site	Designation	Length of time working on PrAISED	Number of therapists in initial training workshop	Trained with site team	Monthly remote group mentoring attendance	On-site group mentoring attendance	Refresher training workshop attendance
T2	A	OT	31 months	13	Yes	5	Yes	Yes
T21	A	PT	31 months	13	Yes	2	Yes	Yes
T31	A	RSW	19 months	4	Yes	0	Not started	No
T35	A	RSW	19 months	4	Yes	1	Not started	Yes
T5	B	OT	31 months	13	Yes	14	Yes	Yes
T14	C	OT	31 months	13	Yes	9	Yes	Yes
T30	C	PT	10 months	1 (online)	No	2	Yes	Yes
T11	C	RSW	20 months	3	No	10	Not started	Yes
T18	D	RSW	29 months	7	Yes	2	Yes	Yes
T22	D	OT	16 months	3	Yes	0	Not started	No
T25	E	OT	23 months	12	Yes	12	No	Yes
T23	E	PT	23 months	12	Yes	8	Yes	Yes
T24	E	OT	23 months	12	Yes	5	Yes	Yes

Site organisation data

Site	Number of therapist	Number of OTs	Number of PTs	Number of RSWs	Numbers of therapists working at a time	Team management	Regular Team Meetings	Number of PrAISED cases
A	14 (22%)	4	4	6	6-8	PT manager/PI	Yes	119 (35%)
B	12 (19%)	3	5	4	5-9	OT in team	Yes	75 (22%)
C	9 (14%)	2	2	5	6	OT manager/PI	Yes	60 (18%)
D	14 (22%)	8	4	2	3-5	no clear structure	No	84 (25%)
E	14 (22%)	4	5	5	9 -12	OT in team	No	23 (6%)
Totals	63	21 (33%)	20 (32%)	22 (35%)				365

Site training data

Site	Therapists trained in a multi-site group	One site large group initial training	One to one or small group initial training	Attendance at remote group mentoring*	Attendance at refresher training	Attendance at on site mentoring
A	5 (36%)	0	9 (64%)	38/42 (90%)	5 (71%)	5/5 (100%)
B	4 (33%)	0	8 (67%)	21/36 (58%)	6 (75%)	4/5 (80%)
C	3 (33%)	0	6 (67%)	30/39 (78%)	5 (83%)	4/4 (100%)
D	1 (7%)	7 (50%)	6 (43%)	9/40 (22%)	3 (50%)	5/7 (71%)
E	0	13 (93%)	1 (7%)	20/24 (83%)	7 (58%)	8 (67%)
Totals	13 (21%)	20 (32%)	30 (48%)	76% (138/181)	63% (26/40)	78% (25/32)

*at least one person per site

Appendix 13: Programme Theory Development Table 2

Relevant Programme Theory: Overall Training Programme			
Level of action: Individual			
CMO: Commitments outside of PrAISED -			
Context: Commitments outside of PrAISED	Mechanism: Logistically unable to attend, unable to prioritise training	Outcome: Unable to attend ongoing training	Resulting CMO Statement: If the therapists have inflexible commitments outside of PrAISED, then they are unable to attend ongoing training because they are unable to prioritise it over existing commitments
Notes: ? unable to prioritise Conversely – colleagues with more flexibility able to attend		Supporting Evidence: T30 node Prioritisation Ref 1 T5 node Prioritisation Ref 1 T18 node Prioritisation Ref 1 T23 node Prioritisation Ref 1 T22 Ref Prioritisation ref 1 T21 node prioritisation ref 1	Supporting Quote: 'Yeah, so I have Tuesday as my PrAISED day, so, if they're on another day, it's very hard for me to get to them, because, obviously, I've got my other job and I have to say my other job is very demanding. Yes, I manage my own diary in that sense, but you know, if there's marking to do, you have to get the marking done etc, etc. I'm often doing stuff outside of work, so to try and get any flexibility in the diaries is quite challenging.' (T30 node Prioritisation Ref 1) '...for lots of teams and I think you can move it to different days but because, the fact that most people were doing one or two days a week for PrAISED, just makes it really difficult for some teams to attend. And I guess it's what you do, in a selfish thing about attending any training is you go, 'What am I going to get out of coming to this? Is this going to help me to do this better?'. And would I prefer to invest that time because you know, I I would go 'right, I've got the capacity to see 2 PrAISED participants a week with the time that I've got.'. Do I use that time to go to teleconference? No, I'd rather see people...' (T21 node prioritisation ref 1)

CMO: Commitments outside of PrAISED - Flexibility			
Context: Therapists with less commitments outside of PrAISED	Mechanism: Because they are more flexible and have less pressures on their time	Outcome: Are more able to attend ongoing training events	Resulting CMO Statement: If therapists have less commitments outside of PrAISED, then they can attend more of the ongoing training events as they are able to be flexible and have less pressures on their time
Notes:		Supporting Evidence: T23 node Prioritisation Ref 1 T5 node Prioritisation ref 1 T11 node Prioritisation ref1 T21 node Prioritisation ref 3	Supporting Quote: I think it might, might be that classic thing of those of us who didn't have lots of other clients to see, lots of other patients to see, will also come to the, the you know, what do I want to say, the audio sessions, what am I trying to say? The MS meetings that we were the ones that able to come to me because we haven't got six people waiting for us to see them. (T23 node Prioritisation Ref 1)
CMO: Social learning			
Context: Learning alongside others	Mechanism: Provides opportunities to bounce ideas of each other, get another point of view, provides a different style of learning, less intense, making the information, applying learning, remembering information, checking understanding and	Outcome: Increased ability to apply knowledge – competence and confidence	Resulting CMO Statement: IF the therapists are provided with opportunities to learn alongside each other, then they will have an increased competence and confidence through increased ability to apply knowledge, because they have had opportunities to 'bounce' ideas off each other, share points of view, have the opportunity to learn through discovery, practice applying learning, benefit from a different, less intense learning style, have the opportunity to check and edit knowledge and feel reassured.

	editing knowledge and reassurance		
Notes:	<p>Supporting Evidence:</p> <p>T20 node social learning Ref1</p> <p>T20 node social learning Ref4</p> <p>T5 node social learning ref1</p> <p>T11 node social learning ref1</p> <p>T22 node social learning ref1</p> <p>T24 node social learning ref 1</p>	<p>Supporting Quote:</p> <p>Yeah. I guess social, yeah, I guess I quite like the discussion side of it and I guess, yeah, being with people, it always kind of helps, doesn't it, cause you can bounce ideas off each other, gives another point of view. I guess as well it kind of gives you a little bit of a break, doesn't it? In terms of, if you're breaking out for discussions or whatever, you have got, it's a different kind of thing, it sort of changes, mixes it up, if you see what I mean. It's different style, isn't it of learning? So I guess in terms of the Ms Teams way of delivery, even when you're in a kind of a discussion between you and me or whoever it was, it's still quite intense, I guess.</p> <p>Yeah, yeah.</p> <p>So you haven't, not escaping, that's not the right word, cause obviously you're still discussing what's relevant, but I guess it's that intensity when it's one to one. And whether that's one to one cause you're actually next to each other or one to one across the airwaves, the Wi-Fi waves. So yeah, I think, I mean, I'm not like a major extravert, but I do like people obviously, like most therapist do. And I do like being with people in the group kind of discussion. So I guess a small group for me probably would be like the optimum, to get the most out of it, but yeah, no. I guess, I still feel I take things away from, if even if it's one to one, and that's fine. It's just that I guess, that intensity. (T20 node M-SL Ref1)</p>	
CMO: Manual			
Context: Need to remember	Mechanism: Refer to manual	Outcome: Intervention delivered with fidelity	Resulting CMO Statement: If the therapist needs to remember something, then they will be able to follow the processes and the procedures because the can refer to

			the manual.
Notes: This may need combining with previous study		Supporting Evidence: T2 node Manual Ref1 T14 node Manual Ref1 T24 node Manual Ref 1 T22 node Manual Ref 1	Supporting Quote: Sorry, I'm just trying to think how else I... It's a few years ago now it's trying to remember what I did. Like reading the folder was helpful and I've still got my car. so if I have anything to remember that's helpful and... I'm trying to think what else (T2 node M-M Ref1)
CMO: Reflection			
Context: Time reflecting	Mechanism: Checking what you have done and consolidating learning	Outcome: Intervention delivered with fidelity	Resulting CMO Statement: If the therapists have time for reflection within the training, then the intervention will be delivered with fidelity because the therapists will have had the opportunity to consolidate their learning and check their knowledge.
Notes: Trying things out and seeing how they work This could happen in supervision –		Supporting Evidence: T5 node Reflection ref 1 Node Reflection	Supporting Quote: You're reflecting all the time, I think, particularly at the beginning, because you wanted to make sure that you doing it right and you consolidating all what you've learned and you're sort of looking at the PrAISED manual and trying to make sure that you doing everything. (T5 node M-R ref1)

Programme Element: Overall Training Programme
Level of Action: Site Teams
CMO: How busy the team is (in and outside of intervention)

Context: The team gets busier	Mechanism: More pressures on time, prioritise participant contact	Outcome: Attend training less	Resulting CMO Statement: If the team gets busier then therapists attend less of the training because there is more pressures on their time and they prioritise participant contact
Notes: Or is this about the more people you see the more competent/confident you are the less you prioritise training or both?		Supporting Evidence: T5 node C-HOP ref2 T18 node M-ATT ref1 T18 node PA-MT ref1	Supporting Quote: Yeah, and although it was quite, sometimes it was a bit difficult, because you'd be on a visit and not everybody could go, every..., once the visit start, I should say, maybe that gets a little bit more difficult to attend. And if you're at the beginning of the study where you've got everybody twice weekly or whatever, then it's fitting it in as well. It's the constraints of it really. (T5 node C-HOP ref2) And maybe it might be, maybe more poor time keeping from our site as well, cause as we were given plenty of notice, but I think because of the environment, because we could we're an acute hospital. Everyone's being pulled onto the wards and me being out all the time, I think that's probably what it was.
CMO: Team support			
Context: Supportive team	Mechanism: They have opportunities to discuss cases and problem solve as a team	Outcome: ? Need less support from training	Resulting CMO Statement: If the site team are supportive, then the therapists need less support from the training team because they have opportunities to discuss cases and solve problems as a team.
Notes: The more team support and the more experienced/competent/confident the team		Supporting Evidence: T2 node C-HOP ref1	Supporting Quote: But again cause I did a day a week it felt enough to pick up quite quickly what to do and the different interventions and then having supervision helps as well. So

<p>the less they feel the need to engage in training? Hard to show evidence for this</p>		<p>obviously with the monthly, sort of group supervision, we could always discuss ideas and if you know, we wanted to have any sort of input from the team about participants that was really helpful, because obviously everyone, like you say, everyone has different experience, so yeah, or catch up and understand or get ideas what to do. (T2 node C-HOP ref1)</p>	
<p>CMO: Team influence</p>			
<p>Context: Your team values the training and discusses who is going</p>	<p>Mechanism:</p>	<p>Outcome: More like to attend</p>	<p>Resulting CMO Statement: If the team values the training and discuss arrangements for attending, then the team is more likely to be represented because</p>
<p>Notes: ? the converse is true, for those teams where ongoing training wasn't valued, not attending became the norm - ? quote <i>'I don't know. I don't know if I can sort of speak for the others, but I just don't think they got into a habit of it from the start. Cos, you know, there was aa lot because we were sort of like small unit, participating in PrAISED, as, but, thats still part of an enormous unit.'</i> (T22 node PA-MT ref1)</p>	<p>Supporting Evidence: T23 node C-TC ref2 T11 node PA-MT ref2 T11 node M-TW ref9</p>	<p>Supporting Quote: I think, just thinking about our team, say going to the away day, going to conference bit? Initially there were very few going, everybody's going 'Well, you know, it's a long way.' And I was sort of like 'A long way? Its Nottingham, what's your problem with it?' And I think that the conversation, not just with my, not just with the people I worked with, the bigger team, that convinced more people to go and I think probably people who wouldn't normally have done that. And they got a lot from it. So yeah, I think absolutely your team will influence what, what, whether you engage in that or not (T23 node C-TC ref2) I think, we all sort of talked about the conferences as if it was something that, the teleconferences as something that we all needed to attend, it was kind of like, you know, we all had the intention to attend, and sometimes people, if they were working on that day or whatever couldn't go. I was very flexible, so I was often able to just, like, you know, move my diary around it, kind of thing like, my participants, but I think we were all we all, it was just something that we kind of expected each other to attend and we</p>	

			knew that, if it was, kind of like, 'Oh who can attend? (T11 node PA-MT ref2)
CMO: Team Leadership			
Context: Team leaders (PIs) who engage with the team about who will attend training	Mechanism: ?Motivate team to prioritise training	Outcome: Therapists attend training	Resulting CMO Statement: If the site team leaders (PIs) engage with the team around arrangement for the ongoing training, then more therapists will attend because they are ?motivated to prioritise training.
Notes: Conversely managers who are not involved/trained/PIs have not always prioritised PrAISED or supported therapists to attend training <i>our higher manager A, is just, you know she's, she's got a lot of things on. There's a lot of projects, a lot of things, and although she will generally be supportive of anything that is showing us to be sort of, research, active and forward thinking, anything you can tweet if you can tweet it, she's usually happy to go along with it, but that has limits for her in terms of people, management and resources, you know all the rest of it, and ultimately, she will, she will prioritise, you know, patient flow through the hospital over anything else. (T22 node M-TL ref1)</i>		Supporting Evidence: T11 node PA-MT ref3 T2 node M-TL ref1	Supporting Quote: Yeah, she does really encourage us to go to the training, again, it's just sort of like, it's just sort of something that I, I guess it's just part of like the culture, maybe of the team, Its not really something I would question. It's just sort of like, you know, this is the teleconference and 'who's, has anybody attended and can anybody attend or right?' You know, it's I don't know, it's just sort of always, been part of the, part of the communication that we, that we have when we have our team meeting, we'll talk about the teleconference. That will be a part of the, kind of, our agenda. It will be like 'okay, what was said at the last teleconference? Is there anything from the study team that we need to be aware of?', That kind of thing? (T11 node PA-MT ref3)
CMO: Reflection with team members			
Context:	Mechanism:	Outcome:	Resulting CMO Statement:

<p>Reflecting with team members or explaining intervention to new team members, informally or formally</p>	<p>Provided a chance to check out processes, understanding, progress and provide reassurance and confidence, talking about ideas gives you different ideas and builds on experience helps unburden self and stay on track</p>	<p>Intervention delivered with increased confidence/competence</p>	<p>If the therapists have the opportunity to reflect with other team members, they will deliver the intervention with ?increased confidence and competence, because they have had the opportunity to share ideas, build on experience, check out processes, consider their understanding, consider participant’s progress, unburden themselves and stay on track with the intervention and this provides reassurance and confidence.</p>
<p>Notes:</p>	<p>Supporting Evidence:</p> <p>T23 node M-R ref1 T5 node M-R ref3 T5 node M-R ref5 T2 node M-R ref3 T2 node M-R ref4 T2 node M-R ref5 T11 node M-R ref2 T22 node M-R ref1 T14 node M-R ref1 T24 node M-R ref2 and 3</p>	<p>Supporting Quote:</p> <p>I think the initial going, it was really helpful to have another therapist or assistant there. So that we could just then talk about it afterwards and say. ‘What, did we do that right?’, ‘What, you know, what did we miss out?’, ‘Is there something for this group, this couple need, that we haven't done with the last couple?’ That was really good. (T23 node M-R ref1)</p> <p>So just sort of actually doing it and thinking about how you do it, as I say, when you’re, when you seeing people really and when you talking about it in supervision and in the team meeting. So thinking about it and talking about it as well, I think that helps to sort of cement some your ideas and then give you different ideas and I guess it's like a changing, changing things so as you're learning more, you sort of adding to it an getting additional knowledge so it's that crystal knowledge, yeah, there's two different types of knowledge types isn’t there? T2 node M-R ref4</p> <p>Reflection, also it was sharing, cause there were frustrations as well</p>	

			so it was, we needed to unburden ourselves a little bit. It was ensuring that we weren't, we were keeping to the remit of the study not sort of, widening it too much and going on to other things. And also we were making sure we were consistent as well, the continuity, so that was important to reflect on that and also the reflection on the success and the engagement, (T24 node M-R ref3)
CMO: Team Building			
Context: Engaging in training as a team	Mechanism: Build rapport, getting to know them as a person and how they work, cements working relationships	Outcome: Developed better team working practices	Resulting CMO Statement: If the therapists have the opportunity to engage in training as a team, then they will develop better team working practices because they have had the opportunity to build rapport, work together, get to know each other as people and how they like to work and cement working relationships.
Notes:		Supporting Evidence: T2 node M-TW ref1 T2 node M-TW ref2 T11 node M-TW ref5	Supporting Quote: So I first met Alex during the training and I think because we've been together for the training for a number of days, you sort of get a rapport with someone. So you sort of build up that working relationship. So that was really helpful and Emma as well, so I met Emma on the training and obviously Alex, you know who they are don't you, Alexis a physio and Emma is a support worker. So obviously getting to know them, from our site was really helpful and then I don't know if you want to talk about subsequent trainings. But then sitting with our whole team as a subsequent training face to face that was really helpful as well. So yeah definitely. Sort of build up their working relationship and just getting to know them as people and how they work and that was really helpful. (T2 node M-TW ref1)

Programme Element: Overall Training Programme			
Level of Action: Across all sites			
CMO: Flexibility/Adaptability of training staff			
Context: Therapists identify a problem/training need	Mechanism: Training team offer flexible support via a range of media to ensure therapists are able to deliver the intervention,	Outcome: Receive the required training or support	Resulting CMO Statement: If the therapists identify a problem or training need, then they receive the required training and support, because the training team offer flexible support via a range of media to ensure therapists are able to deliver the intervention
Notes:		Supporting Evidence: T18 node M-ATT Ref2 T18 node M-ATT Ref3 T24 node M-TTAR ref1	Supporting Quote: I think we were in a sense, almost self quite self sufficient as we knew, we didn't need to come to you guys for too much, but when we did, we did a couple of conferences, but I think we were quite happy to send the email. I think that fit in better time wise. (T18 node M-ATT Ref2) you just want to be here to help. And I think you said, also, you know we could always email everybody if we wanted to know, if you wanted to use of additional support or information. So that was helpful as well. (T24 node M-TTAR ref1)
CMO: Being part of a bigger picture			
Context: When therapists are able to attend training across all sites	Mechanism: They remember they are not working in isolation, feel a sense	Outcome: Therapists feel valued, feel they are 'in this together' and are more	Resulting CMO Statement: If the therapists are able to attend training with therapists from other sites then they feel valued, that they are 'in this together' and are more motivated/enthused, because they remember they are not

	of responsibility and feel like part of a bigger study, feel valued	motivated/enthused?	working in isolation, they feel a sense of responsibility to the project, they feel like they are part of a bigger study and that they are valued.
Notes: Not sure re. outcome		Supporting Evidence: T5 node M-BPOABP ref1 T14 node M-BPOABP ref1 T14 node M-FOR ref1 T14 node M-BPOABP ref2 T14 node M-BPOABP ref3	Supporting Quote: Yes, I think so yeah, yeah, because you know it's not just Derby doing it, is it or not just Nottingham. It's everywhere doing it and so it's like it's a national study, isn't it? So yeah, it does it. It brings it home to you. And also you can get a bit insular sometimes, can't you? That your little team is doing such and such, but really, you're part of the bigger picture and it's good to remind yourself of that really, yeah. (T5 node M-BPOABP ref1)
CMO: Not training with other sites			
Context: Not training with other sites	Mechanism: Because therapists felt other teams were working more closely together	Outcome: Inhibited cross site relationship building	Resulting CMO Statement: If the therapists are not able to train with other sites then cross site relationships are inhibited because therapists feel other teams are working more closely together without them.
Notes: One therapist said they wished they had done this more as this might have increased the enthusiasm of the site.		Supporting Evidence: T23 node M-5R ref1 T23 node M-5R ref2	Supporting Quote: My experience was that it didn't happen, but that might have been just cause we're Oxford in the sense that I, I, might have been in my imagination, my sort of fantasy was that, that the sort of Nottingham, Leicester people talk to each other because they were geographically closer. And they got, and that those with, you know Oxford Bath, whatever, didn't, didn't have any connections, but that's just my fantasy that might not be what actually happened, but that's. (T23 node M-5R ref1)

			<p>The geographical connection, they knew each other better, that sort of stuff. Which and everybody is very welcoming and I'm sure you know, certainly, in the teleconferences they, you knew that you could ask anybody anything, there wasn't any sort of barrier, but outside those, I don't think it would have made the effort to talk to anybody else except you (T23 node M-5R ref2)</p>
<p>CMO: Cross site training</p>			
<p>Context:</p> <p>Training and mentoring with those from other sites,</p>	<p>Mechanism:</p> <p>Sharing ideas, information and experiences across sites, reduces diversification therapists feel affirmed, supported, a sense of camaraderie and that the site was represented,</p>	<p>Outcome:</p> <p>Increases confidence in delivery and implementation/ adaptation of the intervention</p>	<p>Resulting CMO Statement:</p> <p>If training and mentoring is carried out with therapists from other sites, then this increases confidence in delivering and improves implementation/adaptation of the intervention because the therapists have opportunities to share ideas, information and experiences across sites, diversification is reduced, therapists feel affirmed, a sense of camaraderie, that their site is represented</p>
<p>Notes:</p>	<p>Supporting Evidence:</p> <p>T23 node M-5R ref2 T5 node M-5R ref1 T5 node M-5R ref2 T2 node M-5R ref1 T11 node M-5R ref3</p>	<p>Supporting Quote:</p> <p>Yeah, no, well its good to be amongst other people isn't it who were doing exactly the same, and it's good to recognise whether you're all on the same page really, or whether people are diversifying out of it and just to bring everybody back to make sure that we were all doing the same. (T5 node M-5R ref2)</p> <p>I just knew that I could either ask you lot or someone else would</p>	

		<p>T14 node M-5R ref1</p> <p>T24 node M-5R ref2</p> <p>T18 node M-5R ref1</p> <p>T14 node PA-MT ref 1</p> <p>T24 node PA-MT ref2</p>	<p>have come across it and what was helpful was that we were one of the later started sites. So I knew that, I think it was Lincoln, but what they'd already sort of started so I knew they would have come across the issues I had. It was quite affirming, it was quite supportive to discuss cases.</p> <p>(T24 node M-5R ref1)</p>
CMO: Continuity of training staff			
<p>Context:</p> <p>Familiar training staff</p>	<p>Mechanism:</p> <p>Therapists felt supported and able to share tricky questions or concerns over paperwork, not worried about asking trivial questions</p>	<p>Outcome:</p> <p>Therapists were able to engage in training</p>	<p>Resulting CMO Statement:</p> <p>If therapist receive training/mentoring from familiar training staff, then they will be able to engage in the training programme, because they feel supported to share tricky questions or concerns over paperwork and are not worried about asking trivial questions.</p>
<p>Notes:</p>		<p>Supporting Evidence:</p> <p>T24 node PA-MT ref3 and 4</p>	<p>Supporting Quote:</p> <p>Oh, no, absolutely, I knew that you would be there and Vicky obviously latterly wasn't but no, I just knew that it would be fine and supportive and I knew of the other people, even if I had met them. So yeah, no absolutely,. I just thought that we've got, we're all therapist, we've got similar work environments, and we, our motivations are similar in wanting to do the project. So yeah, no, no, absolutely, it was supportive and you felt that you could just you can share anything, however little, even about the paperwork or a tricky case or what have you. No that that was really helpful.</p> <p>Great.</p> <p>Yeah, the continuity was important. I think if it would be in a different person chairing then I probably, yeah, but I wouldn't have</p>

			been so keen, but I was (T24 node PA-MT ref3 and 4)
CMO: Relationships with training staff			
Context: Have time to build relationships with training staff	Mechanism: They don't feel judged, feel trainers supportive and approachable and available and good communication	Outcome: Therapists more likely to engage with training	Resulting CMO Statement: If the therapists have time to build relationships with training staff, then they are more likely to engage in training, because they don't feel judged, they feel the trainers are available, approachable and supportive and that they have good communication between both parties.
Notes:		Supporting Evidence: T11 node M-20 ref1 T14 node M-20 ref1 and 2 T24 node M-20 ref1 T18 node M-20 ref1	Supporting Quote: I think it (ongoing training) helped me gel with my team more, and I think it really helped me feel like I could talk to you and you know the research, your research team. I think that's been really helpful. That contact with you, and I've known that I can email you or just have a Teams chat or whatever, (T11 node M-20 ref1)

Programme Element: Initial Training Workshop			
Level of Action: Individual			
CMO: Timeliness of training			
Context: Large gap between	Mechanism: Therapists worried	Outcome: Delivered the	Resulting CMO Statement: If there is a large gap between the initial training and the start of

training and start of delivery	they may forget things and had to refresh their knowledge as they went along	intervention	intervention deliver, then the intervention is delivered because therapist refresh their knowledge as they go along because they are concerned they may forget things
<p>Notes:</p> <p>? Have I combined two quotes appropriately</p>		<p>Supporting Evidence:</p> <p>T14 node C-TOT Ref1 T18 node C-TOT Ref1</p>	<p>Supporting Quote:</p> <p>think if I remember rightly, the biggest thing was the wait, which I think a lot of sites had wasn't it? From actually doing the training to recruiting and getting started. I think that was the time when we were a bit worried, thinking have we forgotten what to do, we know what to do, but actually as soon as we got started it was fine.</p> <p>(T14 node C-TOT Ref1)</p> <p>But what we found was, as we sort of had a little bit of a gap before we got our first patients, our first five participants, we found that we keep having to refreshing as we went along and as we have said as he got patients on, participants on board sorry, we could actually take sections of the training and put it into practise. (T18 node C-TOT Ref1)</p>
CMO: Case studies			
<p>Context:</p> <p>Using case studies within the initial training</p>	<p>Mechanism:</p> <p>Therapists relate case study to someone they know, they share knowledge, experience and ideas, learning actively through discussion</p>	<p>Outcome:</p> <p>Facilitates active engagement in training, consolidates theoretical learning, allows therapists to identify what they are expected to practically deliver, helps them remember the intervention</p>	<p>Resulting CMO Statement:</p> <p>If case studies are used within the initial training, then this facilitates active engagement in training, consolidates theoretical learning, allows therapists to identify expectations and helps therapists remember the intervention because the therapists relate case studies to someone they know, share knowledge, experience and ideas and learn actively through discussion</p>

Notes:		Supporting Evidence: Node M-5 T24 node M-R ref1	Supporting Quote: <p>I guess more from a didactic kind of lecture delivered, presented on PowerPoint at you and you're taking information in to more kind of, like you say discussion and so I guess it's more kind of engagement, isn't it? You're actually engaged. You're actively doing the learning more through the discussion. (T30 node M-5 Ref1)</p> <p>I found the case studies really helpful and then I can still remember a few of them now, you know about the cooking and how we could make that praise activity by walking to the activities and things. So yeah, it's things like that sort of stick in your head a bit more, don't they. (T2 node M-5 Ref 2)</p> <p>I really, personally, really value case studies and other peoples experiences again, just because it takes it from being textbook or from being, you know, just, sciencey words into the real world and also I think it's helpful because it shows you that it's not, it's not going to be like really simple and easy. I think because I'd never worked with older adults with dementia or frailty, maybe I would have had a view that we're going to go in and do some exercises and then they're going to be like running a marathon, and I think it's sometimes the case studies show you that actually, it's okay if they just improve a little bit, like, or you know, it kind of shows you the like, the scope of expectations and you can kind of, talk about, the fact that some people will improve a lot, some people will just maintain, some people might, might not improve, and I think that's helpful, especially for someone like me who didn't really have much experience at all. (T11 node M-5 ref 2)</p>
CMO: Confidence in the intervention			
Context:	Mechanism:	Outcome:	Resulting CMO Statement:

<p>Learning about the evidence behind the intervention, the process of intervention development and what had gone before</p>	<p>Understanding of why the intervention is being researched and how they fitted into the process of the development of the intervention, therapists felt a sense of responsibility and commitment</p>	<p>Have confidence that it is a good intervention and were invested in the intervention</p>	<p>If the therapist learn about the evidence behind the intervention, the process of intervention delivery and what has gone before then they will have confidence that it is a good intervention and invest in the intervention because they have an understanding of why the intervention is being researched, how they fit into the process and therapists feel a sense of responsibility and commitment.</p>
<p>Notes:</p>		<p>Supporting Evidence:</p> <p>T11 node M-CII ref1 T11 node M-CII ref2 T22 node MCII ref1 T14 node M-CFOR ref1 T 23 node M-IITI ref1 T2 node MIITI ref1 T2 node MIITI ref2</p>	<p>Supporting Quote:</p> <p>I think it gives me confidence, in sort of, that its a good intervention. But also I like to know why we're doing something, so even if it's, you know, I know we are researching whether you know, we're trying to find out, but I think to know where this research study has actually come from, and it you know it's not just been plucked out of thin air. (T11 node M-CII ref2)</p> <p>because I know that it's sort of imprinted on us that what the study was about, that we have to meet the criteria, it is a big study with a lot of money, I don't think you can be flippant with it, and I think it's your personal conscience, your personal, your judgement. And hopefully all the therapists feel like that, that they're committed to it (T14 node M-CFOR ref1)</p>
<p>Group size</p>			
<p>Context:</p> <p>Larger groups</p>	<p>Mechanism:</p> <p>May inhibit discussion as therapists</p>	<p>Outcome:</p> <p>Discussions less fruitful, decreased learning</p>	<p>Resulting CMO Statement:</p> <p>If the therapists are trained in very large groups, then this may lead to less fruitful discussions and less opportunities for learning</p>

	concerned about asking 'silly questions'		because discussions may be inhibited as therapists are concerned about asking 'silly questions'
Notes:		Supporting Evidence: T2 node C-NITS Ref1	Supporting Quote: Personally, I'm better on smaller training, because I'll ask more questions if it gets above, I don't know, above 12, I'll ask questions, but I'll probably, I'll think about them a bit more that I want to look silly. (T2 node T-NITS Ref1)

Programme Element: Monthly remote all sites group mentoring			
Level of Action: Individual			
CMO: Access to facilities			
Context: Therapists didn't identify logisti5 of how to take part and established contact in different ways	Mechanism:	Outcome: Didn't attend monthly group mentoring	Resulting CMO Statement: If therapists didn't identify the logisti5 of how to take part and established contact with trainers in different ways (ie via email), then they didn't attend the monthly group mentoring because they didn't value it, or prioritise it, or already felt supported and confident.
Notes:		Supporting Evidence: T22 node M-ATT Ref1 T18 node M-ATT Ref2	Supporting Quote: And also yeah, you know, as we discovered today, its really difficult to get booked time and where you could participate in a conference, streaming. Its not easy here, and then we were in the process of moving department, so they've actually knocked down what was our old office, which had absolutely nowhere that you would have been able to do that. And we've got me more facility in this new build, but it's not great. You know, the lot of therapy staff in this building. There's not a lot of space, so I think the logisti5 of it, I think ultimately, if nobody sort nailed that from the beginning. (T22 node M-ATT Ref1) I think we were in a sense, almost self quite self sufficient as we knew, we didn't need to come to you guys for too much, but when we did, we did a couple of conferences, but I think we were quite happy to send the email. I think that fit in better time wise. (T18 node M-ATT Ref2)
CMO: Supported to stay on track			

<p>Context:</p> <p>Attending regular mentoring</p>	<p>Mechanism:</p> <p>Therapists reminded what they should be doing and the point of the study in a supportive way</p>	<p>Outcome:</p> <p>Therapists focused on delivering the intervention as intended</p>	<p>Resulting CMO Statement:</p> <p>If the therapists attended the monthly mentoring regularly, then they were focused on delivering the intervention with fidelity because they were reminded of what they should be doing and the point of the study in a supportive way</p>
<p>Notes:</p> <p>Initially people thought this might possibly be monitoring, but was not seen as this</p>		<p>Supporting Evidence:</p> <p>T11 node M-A Ref1 T22 node M-A Ref1 T14node M-A Ref1</p>	<p>Supporting Quote:</p> <p>No. I think that's find it helpful to kind of keep on track and keep like touch base and kind of be reminded almost of what we should be doing and what the, 'cause I think with a study this long you can kind of just, I don't know, I think it, I think if you kind of just left everybody to their own devices after the first year, after the first training session and then said we'll see you in a year, I think you could end up with participants doing like really random stuff. I don't know. I just think its helpful to keep, like keep bringing you back to the kind of, to the point of this study because even when I go out to see the participants, I have to like look at their goals before I go out so that I don't end up doing something completely irrelevant. If that makes sense? I think, just kind of, yeah, and it's always good to get new ideas and keep it fresh a bit, so I've not personally felt like I'm being checked up on. (T11 node M-A Ref1)</p>
<p>CMO: Prioritisation</p>			
<p>Context:</p> <p>When therapists have small contracts and set days of work and there are a lot of demands (participant visits, paperwork, teleconferences) or</p>	<p>Mechanism:</p> <p>They can not fit everything in and prioritise seeing participants.</p>	<p>Outcome:</p> <p>Do not prioritise training</p>	<p>Resulting CMO Statement:</p> <p>If the therapists have small contracts, set days of work, lots of demands on their time and inflexible substantive posts, then they will not prioritise training because they need to prioritise participant visits and are unable to fit everything in</p>

they're substantive posts are not flexible			
Notes:		Supporting Evidence: T30 node PA-MT Ref1 and 3	Supporting Quote: Yeah so for me I think it's probably more structure as well. Saying like, um, you know, fit, sort of, fit in the teleconference and, or catching up with the minutes, notes as part of that day. And it's not just about your participant visits and the paperwork associated with that, it's the whole thing. (T30 node PA-MT Ref3)
CMO: Early support			
Context: When sites/therapists are new	Mechanism: They are in the process of learning and find sharing experiences with others reassuring	Outcome: Therapists are more likely to attend teleconferences	Resulting CMO Statement: If the sites or therapists are new, then they are more likely to attend the teleconferences because they are in the process of learning and find sharing experiences of others reassuring.
Notes:		Supporting Evidence: T5 node PA-MT ref2	Supporting Quote: I think maybe it is more useful at the beginning when everybody is going through the learning stages and the processes and the different things that you've got to fit in. I think maybe it was perhaps more useful then at the beginning, and that maybe, as time goes on, perhaps you don't need it as frequently, but then everybody is at different stages, different sites at different stages, aren't they as well? Yeah, I mean like now to be honest because we're only on the bank now, we will probably not be attending anymore of the, because we have not got the hours and you know and you know it's a bit difficult, isn't it? Yeah, (T5 node PA-MT ref2)
CMO: Videoconferencing			

Context: If you cant meet up face to face	Mechanism: Because it is easier to follow social cues and felt more informal	Outcome: Videoconferencing is preferred to teleconferencing	Resulting CMO Statement: If the therapists cant meet face to face then videoconferencing is preferred to teleconferencing because it is easier to follow social cues and is less formal.
Notes:		Supporting Evidence: T5 node PA-MT ref4 T11 node PA-MT ref1	Supporting Quote: Well, I think it's better now that we do it on the zoom rather than just the telephone because at least you can see people can't you and that. It's a bit more personal. I know it's not brilliant, but it', I think it's better than when it used to be just the telephone. Yeah, that used to be, 'Should I say anything or shouldn't I? I don't know whether anybody else is about wanting to speak or you know you. (T5 node PA-MT ref4)

Programme Element: On-site group Mentoring			
Level of Action: Individual			
CMO: Early support			
Context: When sites are newly set up	Mechanism: Helped with motivation as intensity increased, felt nurtured and supported	Outcome: Therapists more confident at delivering the intervention	Resulting CMO Statement: If the sites are newly set up, then therapists are more confident delivering the intervention because the on site mentoring has helped with motivation and the therapists feel nurtured and supported.
Notes:		Supporting Evidence: T24 node PA-SM Ref 1	Supporting Quote: No, I think we needed that., more input to start early on to sort of launch us, really, I think we might have lost a bit of momentum if we

		<p>hadn't had that, And because it was getting more real by then, I think we needed it, sort of felt more, yeah, the intensity needed to increase, so that was, that was helpful. Yeah no, I yeah, and it also felt, sort of nurturing and it sounds a bit funny words, but it did feel nurturing, which was I mean, and it is, we appreciate it was a big schlep for you down here, and it felt like, yeah, yeah it was, yeah supportive and an yeah, it was, it felt professionally what you needed to be done on what is a big study and with satellite groups I think it was, it was a practical meeting in on mass with other people so I think it was really helpful and you're going to get information face to face that you wouldn't have got on the teleconference. Yeah, there was spontaneity and yeah, it was. Yeah, I think that was really helpful and unnecessary. (T24 node PA-SM Ref 1)</p>
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Programme Element: Refresher Workshop			
Level of Action: Individual			
CMO: Informal face to face connections			
Context: Meeting face to face	Mechanism: Able to have informal discussions	Outcome: Building cross site relationships	Resulting CMO Statement: If the therapists have the opportunity to
Notes:		Supporting Evidence: T23 node M-5R ref2	Supporting Quote: it did give you that those, those networking chances that is always my reasons for going to conferences, which is, you know, just chatting to the to the people in the other areas... so the, those conversations, those haphazard conversations, don't happen when

		you go on a teleconference (T23 node M-5R ref3)	
CMO: Opportunity for reflection			
Context: Designated time to reflect on cases	Mechanism: Able to consider more complex aspects alongside evidence base and how to apply it	Outcome: Improved intervention for participants	Resulting CMO Statement:
Notes:		Supporting Evidence: T5 node PA-RT ref1 T2 node PA-RT ref1 T2 node PA-RT ref2	Supporting Quote: And then remember Claudio, did the talk on motivation, I found that really helpful, because obviously we've had a few participants that had struggled for motivation and then so Claudio had gone through some other things we could consider. And then I remember Vicky did that presentation on the physio bits as well and they said about the app you could use, so that was helpful because again we had another participant later on that I had sort of thought about that, how we could directly apply, that and so that was interesting. (T2 node PA-RT ref1)
CMO: Staying on track			
Context: Opportunity to share practice across sites	Mechanism: Identify where teams are doing the same or diversifying and bringing back on track	Outcome: Deliver the intervention with fidelity	Resulting CMO Statement:

Notes:		Supporting Evidence: T5 node PA-RT ref1	Supporting Quote: Yeah, no, well its good to be amongst other people isn't it who were doing exactly the same, and it's good to recognise whether you're all on the same page really, or whether people are diversifying out of it and just to bring everybody back to make sure that we were all doing the same. (T5 node PA-RT ref1)
CMO: Learning from others experiences			
Context: Time for sharing between sites	Mechanism: Therapists could learn from the experiences of others and supporting each other and feeling reassured	Outcome: Improved intervention for participants, therapists had more ideas how to implement intervention	Resulting CMO Statement:
Notes:		Supporting Evidence: T2 node PA-RT ref3 T11 node PA-RT ref1 T24 node PA-RT ref2 T18 node PA-RT ref1	Supporting Quote: Just talking about how they were doing it. And what they were doing and how they were doing the intervention. When I spoke to Derby, I think they, I think Debbie might have had a question about equipment or something because they had somebody who was in Nottinghamshire so I could sort of help with that. And then I think we were speaking about, I think from Derby and from Lincoln they were saying about getting to the participants, can be, they have a longer travel time generally, well, depends where they are in Nottingham but obviously, we, we don't have quite as far always to go, so they had sort of, different challenges so it was interesting hearing about their challenges.
CMO: Revisit concepts			

Context: Time to revisit concepts	Mechanism: Clarify things,	Outcome: increase understanding	Resulting CMO Statement:
Notes: Need to look for this, I feel like more was said than was in this node		Supporting Evidence: T2 node M-RC ref1	Supporting Quote: No, I don't think so, not of the top of my head. I just found it really beneficial, especially the conference as well, you know, sort of coming back together and cause that was probably like a year and a half after I had the training. So it was helpful then just reiterate it, clarify things and get a good understanding. So yeah, that was very helpful. (T2 node M-RC ref1)