Learning from experience: best practices for organisations when supporting newly trained virtual reality therapists – a qualitative case study

Master thesis

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Abstract

Background Virtual reality (VR) has been shown to hold promise for improving mental health care delivery. However, the implementation of VR in practice remains challenging and implementation efforts have disappointing results, even when therapists report feeling confident and intend to use VR after completing a training aimed at improving their skills and knowledge. Therefore, this study aims to identify the best practices for organisations when supporting newly trained VR therapists to improve VR implementation.

Methods During this study, a secondary analysis was conducted on previously gathered data to identify organisational factors that influenced VR usage of newly trained therapists in practice. The used dataset consisted of interviews with eleven newly trained therapists who were interviewed before, directly after and three months after a VR training. To reveal influential factors, the dataset was first coded deductively over the five domains of the Consolidated Framework for Implementation Research (CFIR), after which the fragments were inductively coded to reveal relevant factors. Based on the identified factors, recommendations were created for the organisation. These recommendations were validated with VR therapists via an online questionnaire.

Results Most areas of improvement for the implementation of VR in practice, lied within the innovation and inner setting domain. Organisations are encouraged to thoroughly inform future VR therapists about VR and to consider post-training requirements for the training participants. Additionally, organisations are advised to provide (practical) support and actively stimulate VR use in practice. In doing so, organisations could share their vision and integrate VR in standardized processes and documents to provide guidance and leadership for VR use in practice. Lastly, organisations could increase knowledge and awareness for VR throughout the organisation to support the implementation process. When validating these findings, participants considered these recommendations to be important for the implementation of VR in practice.

Discussion This study underlined the importance of taking organisational context into account when selecting strategies to implement VR. The findings indicate the need for organisational management to take leadership in providing a clear vision, actively stimulating involvement of therapists with VR, and to facilitate (practical) support to newly trained therapists when aiming to improve the adoption of VR. Additionally, as VR requires adaptations to be made throughout the organisation, this study highlights the importance of taking a holistic, multi-level approach during implementation.

1. Introduction

In the Netherlands the number of Dutch adults who reported mental health issues have increased from 17% in the period of 2007-2009 to 26% in 2019-2022 (Ten Have et al., 2023). As a consequence, there is an increasing demand for specialized care (6% in 2007-2009 to 10% in 2019-2022) (Ten Have et al., 2023). This increasing demand is putting pressure on the mental health care system and people have to wait longer than the norm when trying to get treatment (de Nederlandse GGZ, 2022). Therefore, there is a need to optimize health care delivery, so more people can access the care they need more quickly.

For many disorders patients face difficulties when interacting with their environment as this can trigger symptoms, for example small talk can trigger social anxiety or environmental factors can trigger cravings for alcohol or drugs (Emmelkamp & Meyerbroker, 2021; Freeman et al., 2017). Therefore multiple treatments (e.g., cognitive behavioural therapy) include exercises aimed at improving the interaction of patients with their environment. These exercises are ideally performed in vivo, however this does not come without challenges (Botella et al., 2017; Bouchard et al., 2017). As the environment cannot be controlled when performing in vivo exercises, this may lead to unpredictable situations that could be too challenging or even potentially dangerous for the patient or others, leading to a high threshold for patients to engage in these exercises. As an alternative, these exercises can be performed by (re)creating situations in the treatment room or by using the imagination of therapist and patient. This is not optimal, as some patient groups can have difficulty imagining these situations (Kip et al., 2019). Therefore, there is a need to find a balance between in vivo and treatment-room exercises. A technology that holds promise to bridge this gap is virtual reality (VR) (Botella et al., 2017; Bouchard et al., 2017).

VR technology often consists of a head mounted device, headphones, and joysticks. When using VR, users are immersed in a virtual world in which they can move around and sometimes even interact with the environment, which changes their perception. Even though the user is aware that the virtual world is not real, they can acquire a sense of presence, meaning that the user feels as if they are actually in the virtual world (Riches et al., 2019). Additionally, the user can experience a sense of embodiment, meaning that the user feels as if the virtual body is actually their own, and research has even shown that VR can elicit physiological and emotional responses (Martens et al., 2019; Somarathna et al., 2023). These phenomena indicate that the experiences within VR environments could be comparable to real life, making VR an interesting technology to use within mental health care. Previous studies have shown that VR is effective for the treatment of several disorders, such as multiple anxiety disorders and psychosis (Geraets et al., 2021; Pot-Kolder et al., 2020; Pot-Kolder et al., 2018).

Additionally, VR as a part of cognitive behavioural therapy has proven to be cost effective for the treatment of psychosis (Pot-Kolder et al., 2020).

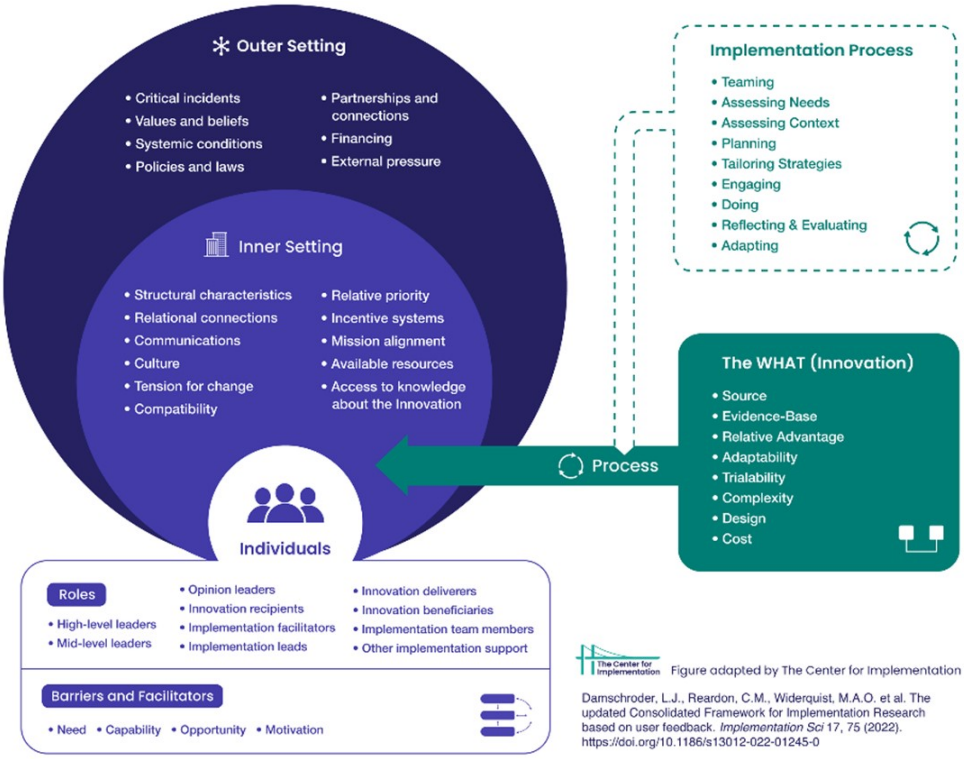
In addition to its (cost-)effectiveness, VR offers several advantages for treatment. First of all, VR could offer therapist and patient the option of doing instead of talking, which can be of great help when patients have difficulties reflecting on or talking about emotions or experiences (Kip et al., 2019). Second, virtual environments can be manipulated to create a safe and controlled environment, allowing for high levels of personalisation and a lower threshold for patients to participate in exercises (Bell et al., 2020; Freeman et al., 2017). Third, it is a more achievable way to perform exercises that would normally be conducted in the real world as it offers the option of bringing the outside world into the treatment room (Kip et al., 2023). Lastly, as VR is often thought of as fun to do, it can help engage patients who are unmotivated for their treatment (Bell et al., 2020).

Even though VR offers benefits for treatment, the uptake in practice remains low (Kip et al., 2023; Kouijzer et al., 2023). Research has shown that a broad range of factors are impacting VR implementation in healthcare (Glegg & Levac, 2017; Kip et al., 2023; Kouijzer et al., 2023). To illustrate, technical difficulties and feelings of insecurity of therapists about their skill set showed to increase the threshold for using VR and thus negatively impacted its use in practice. On the contrary, good training for therapists, evidence on the added value of VR, and a feeling of self-efficacy of therapists were found to support VR implementation. When considering these findings, a more elaborate training program seemed like a promising implementation strategy as this would provide therapists with the skills, knowledge, and confidence needed to apply VR in practice. As a result, a study was recently conducted to design and evaluate the impact of a more elaborate VR training program (Kouijzer et al., Manuscript in preparation). This study showed that the training was effective in the sense that participants felt that they had the skills and knowledge to perform VR, however the uptake of VR in practice remained low. Findings of Kouijzer et al. (Manuscript in preparation) indicated that organisational factors played a role in this low uptake, and organisations were recommended to focus on creating a supportive environment. While the study provides valuable insights, there remains room to further explore on how organisations could best translate these findings into practice.

Therefore, this study will build upon the results of the study of Kouijzer et al. (Manuscript in preparation) by providing practical recommendations on how organisations can create such a supportive environment. Thus, the main goal of this study is to describe the best practices for organisations when aiming to support newly trained VR therapists in practice. To accomplish this, this study will first evaluate which factors influenced VR use of newly trained therapists, with a specific focus on organisational factors. Based on these findings, practical recommendations will be described for organisations on how they can best support newly trained therapists to improve VR use in practice.

To allow for a comprehensive and structured approach, this study will make use of the Consolidated Framework for Implementation Research (CFIR), which is a determinant framework. Determinant frameworks provide guidance in exploring factors that are hypothesized or found to impact implementation outcomes (Nilsen, 2015). The CFIR provides a structure in which factors that influence implementation outcomes can be divided, consisting of five domains with underlying constructs, see Figure 1 for a schematic representation of the framework (Damschroder et al., 2009; Damschroder et al., 2022). The CFIR was primarily designed to support researchers when selecting or developing implementation strategies (Damschroder & Lowery, 2013; Damschroder et al., 2022). However, the framework can also be used as a tool when evaluating an implementation process, as it can help to identify factors that impacted implementation outcomes, which is its intended purpose in this study.

Figure 1 - The consolidated framework for implementation research (Damschroder et al., 2022).



In conclusion, the main question that this study aims to answer is: *What are the best practices for supporting newly trained VR-therapists to improve VR implementation?* In order to answer the main question, the following research questions will be answered:

1. *What organisational factors influenced the use of VR in practice by newly trained VR therapists?*
2. *What are points of improvement for the organisation when supporting therapists before, during and after VR training?*

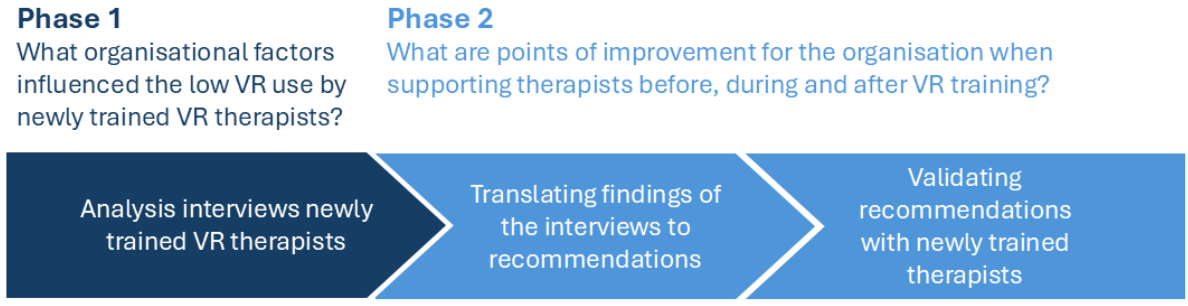
2. Methods

Design and setting

The data used in this study were collected at a mental health care institution located in the Netherlands, which consists of seven foundations that together employ 2800 people and 1500 volunteers. Together, they offer a wide range of care, including VR therapy. The organisation started the implementation of VR in 2020 and since then multiple implementation efforts have been undertaken to embed VR in health care delivery. However, these efforts did not lead to the desired increase of VR use, leading the organisation to explore ways to improve VR use in practice.

This study consists of two research phases that build upon each other, see Figure 2 for an overview of this study. During the first phase a qualitative case study was conducted at the mental health care organisation to better understand which factors influenced the VR use of newly trained therapists in practice, with a specific focus on organisational factors. A case study was found to be a fitting method as it allows for a thorough understanding of a process, issue or event in its real-life setting (Crowe et al., 2011). For the case study a secondary analysis was conducted following the method of thematic analysis. To allow for a explorative, yet structured approach, a combination of a deductive and inductive analysis was used. The data that were used for the case study were previously gathered by Kouijzer et al. (Manuscript in preparation) during a qualitative longitudinal study. The dataset contained data of three interviews per training participant, during which their expectations and experiences of a newly developed VR training and their VR use in practice were discussed, making the dataset suitable to answer the first research question. The second phase of this study focussed on translating of the findings of phase one into practical recommendations for organisations on how they can best provide support to newly trained therapists for VR use in practice, thereby answering the second research question. To minimize the influence of the researchers (LK) subjective interpretations, the recommendations were validated with the participants of the original VR training via an online questionnaire. Adjustments were made to the recommendations based on the survey results if needed.

Figure 2 - Schematic overview of the design of this study.



CleVR technology

This study focussed on the implementation of the interactive VR soft- and hardware of CleVR, which can be used to bridge the gap between the treatment room and the real world. The technology allows users to choose a location, avatars, and triggers, enabling therapists to personalize the conditions to match a purposeful environment for the patient (CleVR | Producten, 2024). In these environments exercises, for example exposure or skills training exercises, can be performed. Possible virtual environments include a bus, a pub or a home environment. In Figure 3, the entire setup of the CleVR system and examples of virtual environments are shown.

When engaging with VR, the patient will be immersed in the virtual environment by using VR goggles and noise cancelling headphones, through which the virtual environment can be seen and heard. The patient can move around freely in the virtual world by using two joysticks. Simultaneously, the therapist will use a headset, laptop, and tablet with the CleVR software. The laptop displays the view of the patient during the session and the CleVR software on the tablet allows therapists to control the environment in which the patient is located. Additionally, therapists can impersonate the other avatars in the environment and can thus control interactions with the patient during the exercise via roleplay.

Figure 3 - Impression of the CleVR system. Image A shows the setup of the system in practice, images B-D show examples of virtual environments that can be seen by the patient (*CleVR | Producten*, 2024).

Phase 1 - Interviews

Participants

The inclusion criteria for participation in the study of Kouijzer et al. (Manuscript in preparation) were that the therapist worked at the mental health care organisation, they participated in the VR training, and they were involved in the treatment with in- or outpatients (Kouijzer et al., Manuscript in preparation). All twelve training participants were invited to participate in the study, eleven participants agreed to participate in the study and one participant declined. In the first interview, all eleven participants were interviewed. After the first interview one participant stopped the training due to scheduling issues, one participant could not continue due to illness and one participant stopped due to changing organisations. These three participants dropped out of the study and did not participate in the second and third interview rounds. In the second interview round eight participants were interviewed, after which another participant dropped out due to illness and did therefore not participate in the final interview. In total, seven participants completed the training program and participated in all three interviews. The characteristics of the participants are shown in Table 1.

Table 1 - Characteristics of the participants in the interviews that are included in the dataset (Kouijzer et al., Manuscript in preparation).

Participant #	Work experience mental healthcare in years	Function	Patient group	Treatment form	Participated in interview #
1	6	Psychologist in training to become behavioural therapist	Complex trauma	Individual	1, 2, 3
2	19	Cognitive behavioural therapist & system therapist	Forensic	Individual + Group	1, 2, 3
3	4	Psychologist	Anxiety, mood, and personality disorders	Individual	1, 2, 3
4	24	Social psychiatric nurse	Bipolar and psychotic disorders	Individual	1, 2, 3
5	6	Social pedagogical counsellor	Anxiety, mood and personality disorders	Individual + Group	1, 2, 3
6	7	Psychomotor therapist	Complex trauma & anxiety and mood disorders	Individual + Group	1, 2, 3
7	1	Social worker & Social psychiatric nurse	Youth	Individual + Group	1
8	2	Psychologist	General	Individual + Group	1, 2
9	20	Clinical psychologist & cognitive behavioural therapist	Youth	Individual	1
10	33	Nurse practitioner & Lead practitioner	Addiction	Individual	1
11	23	Social worker	Youth	Individual	1, 2, 3

Materials and procedures

The dataset that was used in this study consisted of verbatim transcribed fragments that were gathered during interviews conducted by Kouijzer et al. (Manuscript in preparation). The study of Kouijzer et al. (Manuscript in preparation) was approved by the Ethics Committee of the Behavioural, Management and Social Sciences faculty of the University of Twente (request number 231073), and all participants of the study gave their informed consent for their participation. During the study of Kouijzer et al. (Manuscript in preparation) interviews were conducted in Dutch at three points in time in 2023 and 2024; one interview was conducted before the training started, one took place directly after the training was finished, and one was conducted three months after the training was completed (Kouijzer et al., Manuscript in preparation). The interviews were conducted in a semi-structured manner and different interview schemes were used for each interview round, these can be found in Appendix A (Kouijzer et al., Manuscript in preparation).

Analysis

For the analysis version 25.0.1.32924 of Atlas.ti software was used, which is a software package suitable for the analysis of interview data (Atlas.ti). The first step of the analysis consisted of the researcher (LK) familiarizing themselves with the data by reading through all fragments. Next, the interview data were filtered, during which fragments were removed from the dataset if they met one of the following exclusion criteria:

- The quote only contained feedback on the training that was given.
- The quote only contained remarks about personal goals during and after the training.
- The quote only contained remarks about the expectations of the training.
- The quote only contained information about previous experiences of the participant with VR.

To provide structure to the analysis, the remaining fragments were coded using a top down, deductive approach. Fragments were divided over the five domains of the CFIR (i.e. the individual, inner setting, innovation, outer setting and implementation process domains), during which the framework definitions were leading (Damschroder et al., 2022). Next, a bottom-up approach was taken by inductively coding the fragments in each CFIR domain, this was considered suitable as it allowed the experiences of participants to be central during the analysis. The analysis was based on the method of thematic analysis as described by Braun and Clarke (2022), the process was adapted by reporting main- and subcodes instead of themes as this allowed for a more detailed representation of the data. During the analysis a coding scheme was created consisting of the main- and subcodes and their definitions, subcodes were created if multiple distinct topics were addressed within a main code. The analysis,

including the creation of the coding scheme, was conducted by one researcher (LK). During the process two supervisors (HK and MK) regularly provided feedback on the coding scheme, after which LK adjusted the coding scheme and the analysis.

Phase 2 – Recommendations and validation

Participants

After creating the recommendations they were validated with participants of the original interviews conducted in the study of Kouijzer et al. (Manuscript in preparation), as this was the most convenient approach which was desirable due to time restraints. Those who participated and completed all phases of the research and training in the study of (Kouijzer et al., Manuscript in preparation), see Table 1, were invited via e-mail to participate. In total seven participants were invited, of whom three accepted the invitation and filled out the questionnaire, three participants did not respond to the invitation, and one participant was on leave and was thus not able to participate.

Materials and procedures

Several steps were taken to translate the results of phase one into recommendations for the organisation. First, the researcher (LK) listed all factors that were found to influence the implementation process in phase one, after which they were inductively clustered based on their underlying theme. The themes that the researcher (LK) judged to be outside the circle of influence of the organisations control were removed. The relevance of the remaining themes to the implementation process was then carefully reviewed by the researcher (LK) based on the results of phase one, after which relevant themes were selected for the recommendations. To translate these themes into recommendations, a combination of both the interpretation of the researcher (LK) and direct recommendations of the participants was used.

To validate the recommendations an online questionnaire was considered to be most fitting considering its low threshold for participation and time restraints of both researcher and participants. The questionnaire was created in Microsoft Forms in Dutch and participants were invited to participate anonymously in the study via e-mail including the questionnaire, which can be found in Appendix B. The questionnaire was open for responses during fourteen days during February 2025 and a reminder was sent two days before the closing date.

In the questionnaire, participants were first asked to answer several general questions about their VR use in practice and their patient group to provide context to the answers that were given. Next, the participants were presented with the recommendations, including short explanations, and they were asked to what extent they considered the recommendations to be important for successful

implementation of VR. This was asked per recommendation with a 5-point symmetrical Likert scale, ranging from not at all important to very important (Joshi et al., 2015). Subsequently, participants were given the opportunity to elaborate on why they did, or did not, feel that each recommendation contributed to successful VR implementation. Lastly, the participants were asked if they had any other remarks or suggestions for recommendations that were missed in this research.

Analysis

The answers of participants were exported to Microsoft Excel. First, the researcher (LK) familiarized themselves with the data by reading the answers of each participant separately. Second, an overview of the degree to which participants considered each recommendation to be important was created with a percentage bar graph. Third, the researcher (LK) evaluated whether participants' reasons for their responses regarding the importance of each recommendation, were in line with the results of phase one. If the researcher (LK) judged that there was a notable difference the recommendations were adjusted. Lastly, the researcher (LK) made adaptations to the recommendations if remarks or suggestions for additional recommendations were made by more than one participant in response to the final question.

3. Results

Phase 1 – Interviews

The first phase of this study aimed to answer the following research question: *What organisational factors influenced VR use of newly trained VR therapists?* The analysis of the interviews showed that factors within the inner setting, innovation, individual, and outer setting domains of the CFIR were impacting VR use in practice. No codes were assigned to the implementation process domain. In this section, the results of the analysis will be discussed per CFIR domain, an overview of the codes and their definitions can be found in Table 2.

Inner setting domain

1. Organisational support

The code "Organisational support" touches on the extent to which participants felt that the organisation created the right circumstances for the implementation and use of VR in practice. The interviews revealed that there was room for improvement regarding organisational support, however they also revealed areas that were supporting VR implementation. Overall, the topic of organisational support was addressed most often three months after the training.

1.1 Collaboration

The subcode "Collaboration" relates to the extent to which participants see added value for intervision or providing support to colleagues in other ways across the organisation. Across all interview rounds, participants saw added value for intervision and providing support amongst colleagues. However, both directly after the training and three months later, four participants mentioned that they were not using VR enough for intervision to be valuable and remarked that low threshold conversations could be more helpful due to time restraints. Two participants did still see the benefits of intervision and remarked that the organisation should provide support and guidance in setting up an intervision group, as illustrated by the following quote:

"Well with regard to intervision. Somehow I cannot get this organized properly by myself. […] So that might have to be arranged centrally. […] So if necessary, just a central intervision meeting via Teams or something. That should be facilitated." – Participant 2

1.2 Practical preconditions

The subcode "Practical preconditions" entails the extent to which the practical requirements for satisfactory VR use are provided for within the organisation. Across all interview rounds, the results showed that it was important that the VR set was on site and easily accessible. Immediately after the

Table 2 – Main codes and their subcodes including their definitions.

Domain	Code		Definition	Total (n_{tot})[1]	1 (n_1)[2]	2 (n_2)[3]	3 (n_3)[4]
Inner setting *"The setting in which the innovation [VR] is implemented"* ***(Damschroder et al., 2022)***	**1**	**Organisational support**	**The extent to which participants felt that the organisation created the right circumstances for the implementation and use of VR in practice.**	**119 (11)**	**34 (11)**	**31 (8)**	**54 (7)**
	1.1	Collaboration	The extent to which participants see added value for intervision, or providing support to colleagues in other ways, across the organisation.	41 (9)	9 (6)	21 (8)	11 (7)
	1.2	Practical preconditions	The extent to which the practical requirements for satisfactory VR use are provided for within the organisation.	33 (9)	7 (6)	8 (3)	18 (7)
	1.3	Stimulation management	The extent to which management is actively involved in and encourages VR use in practice.	26 (11)	17 (11)	-	9 (5)
	1.4	Organisational vision	The extent to which the organisational vision on VR is clear and supporting VR use in practice.	12 (6)	1 (1)	2 (2)	9 (6)
	1.5	Organisational culture	The extent to which participants experience that the leadership style is supporting VR use in practice.	7 (2)	-	-	7 (2)
	2	**Standardization VR**	**The extent to which VR is part of daily practice and integrated within the organisation.**	**66 (9)**	**6 (3)**	**17 (6)**	**43 (7)**
	2.1	Awareness VR	The extent to which the participants and employees of the organisation are engaged with VR, and the consequences of this degree of attention.	39 (9)	5 (3)	12 (6)	22 (6)

[1] Number of times the code was addressed in total across all interviews, including the number of participants that addressed the code in total (n_{tot})

[2] Number of times the code was addressed in the first interview round, including the number of participants that addressed the code within the first interview (n_1)

[3] Number of times the code was addressed in the second interview round, including the number of participants that addressed the code within the second interview (n_2)

[4] Number of times the code was addressed in the third interview round, including the number of participants that addressed the code within the third interview (n_3)

	2.2	Integration VR	The extent to which VR is a part of standard work processes and documentation, and the consequences of this integration for VR use within the organisation.	27 (8)	1 (1)	5 (3)	21 (7)
	3	**Role VR therapist**	**The vision of participants on how they believe the position of VR therapist could be fulfilled within the organisation and whether its use should be mandatory.**	**24 (6)**	**1 (1)**	**4 (1)**	**19 (6)**
Innovation *"The "thing" [VR] that is being implemented"* ***(Damschroder et al., 2022)***	**4**	**Added value VR**	**The extent to which VR is expected or experienced to be of added value.**	**76 (11)**	**25 (9)**	**23 (8)**	**28 (6)**
	4.1	Applications VR	The participants expectations or experiences about when VR can be of added value and how it could be applied in practice to achieve these benefits.	39 (11)	18 (9)	9 (5)	12 (5)
	4.2	Suitability patient group	The extent to which participants expect or experience VR to be of added value for the patients within their caseload.	37 (9)	7 (5)	14 (8)	16 (5)
	5	**Challenges VR technology**	**The extent to which the flaws of VR technology have had an influence on the implementation process.**	**44 (8)**	**7 (5)**	**27 (7)**	**10 (4)**
	5.1	User-friendliness VR	The extent to which the participants expect or experience the VR technology as complex and difficult, and the consequences of this for VR use in practice.	17 (5)	4 (3)	7 (3)	6 (3)
	5.2	Malfunctioning VR system	The extent to which the VR set fails in practice due to hard- or software errors and the impact of this failure on VR use in practice.	16 (6)	-	13 (6)	3 (3)
	5.3	Limitations virtual environments	The extent to which participants expect or experience the look, feel, and possibilities of the virtual environments as limiting when using VR in practice.	11 (6)	3 (3)	7 (4)	1 (1)
Individual *"The roles and characteristics of individuals"* ***(Damschroder et al., 2022)***	**6**	**Capabilities**	**The extent to which participants are confident about their skills and knowledge about using VR in practice.**	**41 (8)**	**2 (2)**	**24 (7)**	**15 (7)**
	7	**Motivation**	**The extent to which participants are motivated and intend to use VR in the future.**	**31 (8)**	**1 (1)**	**8 (7)**	**22 (7)**

Outer setting *"The setting in which the inner setting exists (e.g. national level)"* ***(Damschroder et al., 2022)***	**8**	**VR in mental health care**	**The extent to which the participant believes that VR will become an integrated part of mental health care delivery in general.**	**14 (9)**	**5 (4)**	**2 (1)**	**7 (6)**

training and three months later, five participants discussed that time constraints were negatively impacting their VR use. This was caused by busy schedules, a high pressure on production within the organisation, and the high time demand of planning and preparing VR. Two participants desired that the organisation would provide them with sufficient time and support with setting up a VR session, as illustrated by participant 1:

> *"Because you have to see a lot of patients on one day, the production norm is quite high, your calendar is overflowing. It would be nice if you do not have to arrange or reserve all kinds of things yourself. That should just be facilitated."* – Participant 1

1.3 Stimulation management

The subcode "Stimulation management" involves the extent to which management is actively involved in and encourages VR use in practice. Before the start of the training, nine participants felt that the organisation was stimulating training participation overall. However, three months after the training, three participants remarked that they felt that stimulation of management for VR use in practice was lacking and that its use was very much self-initiated, as illustrated by participant 4:

> *"I think it helps if you get a bit more encouragement or a clear vision from management. I think that is very effective because we can sometimes be a bit hesitant to take initiative. I do think that helps to get things done. If you feel that sense of duty, it does help – you just have to do what needs to be done. A little guidance from higher up would be motivating."*

1.4 Organisational vision

The subcode "Organisational vision" addresses the extent to which the organisational vision on VR is clear and supporting VR use in practice. Both directly after the training and three months later, two participants remarked that the organisation pushed therapists to use VR due to financial pressure, which they did not consider to be the appropriate motivation. Three months after the training, six participants also mentioned that they did not feel that the organisation had a substantial vision on VR use in practice. Three participants remarked that this negatively impacted VR use as they did not feel that everybody within the organisation was engaged in the policy, and teams did not always focus on the same goals. Participant 11 described this as follows:

> *"I do think that a clear vision [of the organisation] plays a role in it truly becoming part of the offered treatments. However, I notice that this is very fragmented here. It is a very large organization with many small institutions under it. […] There is not really a clear vision from the organisation; it's not something that is incorporated into the annual plans or anything like that. It is more that we, as a team, decide for ourselves."*

1.5 Organisational culture

The subcode “Organisational culture” concerns the extent to which participants experience that the leadership styles within the organisation are supporting VR use in practice. This code was only discussed in the interview conducted three months after the training, in which one participant remarked that they experienced a certain hierarchy within their team, which they felt was negatively impacting VR use, as illustrated by the quote below:

“I am therefore careful when suggesting this [VR as a treatment option], because I am at the bottom of the chain of command. The coordinating practitioner is not familiar with VR at all and is clearly experienced. What am I going to do then? Am I going to decide that we must use VR? I wouldn't do that.” – Participant 3

2. Standardization VR

The code “Standardization VR” relates to the extent to which VR is part of daily practice and integrated within the organisation. The interviews revealed that the participants did not consider VR to be a part of daily practice and thus poorly integrated, leaving room for improvement. This code was mainly discussed three months after the training.

2.1 Awareness VR

The subcode “Awareness VR” considers the extent to which the participants and employees of the organisation are engaged with VR. Directly after the training had finished and three months later, eight participants stated that they felt that VR received insufficient attention within the organisation, causing it to fade into the background. Consequently, colleagues were often unfamiliar with the possibilities of VR, which contributed to low referral rates. On the other hand, three participants acknowledged that they did not always have sufficient attention for VR themselves, contributing to lower VR use as well. Two therapists suggested spreading positive stories about VR to improve awareness within the organisation, participant 4 described this as follows:

“You could mainly provide support by sharing enthusiastic stories. That always works well; sharing positive experiences and having people say: Oh, so that is how it works too! This way, you get many more referrals.”

2.2 Integration VR

The subcode “Integration VR” focuses on the extent to which VR is a part of standard work processes and documentation. This topic was mainly discussed directly after the training was completed as well as three months later, during which six participants remarked that VR was often seen as separate from,

instead of a part of, standard care and thus not integrated in treatment protocols or multidisciplinary meetings. Participant 5 expressed the consequences of this as follows:

> *"[When deciding on a patients treatment] We now just have the standard options that come up first, the standard treatment protocols. This does not include VR, I think that when you would integrate VR more, it would automatically come up more often and everybody would use it a lot more."*

On the other hand, seven participants commented that VR might not always be fitting with the way of working within the organisation, making it difficult to integrate VR in practice. For example, as VR requires significant planning beforehand, it does not allow for spontaneous use which would be more desirable in sessions.

3. Role VR therapist

The code "Role VR therapist" relates to the vision of participants on how they believe the position of VR therapist could be fulfilled within the organisation and whether its use should be mandatory. This was most extensively discussed three months after the training, when three participants reflected that it might be more valuable for the organisation to treat VR as an expertise instead of aiming to train everybody for VR. Participants also discussed the possibility of mandatory VR use for trained therapists, five participants were reluctant to this idea as it would decrease their autonomy and they believed that the fit with the patient should come first. However, one participant did see value in mandatory use of VR and suggested that an expert team, consisting of people with dedicated time for VR to whom others can refer patients, might be valuable. They also suggested that a higher threshold for training might be valuable for the organisation, as illustrated by the following quote:

> *"I think that if the entire process of using VR would be more structured, less optional, that it would work. That you just do the VR training, but that a condition would be that you are expected to join an expert team for half a year and that you, for example, have to be available for an hour a week."* – Participant 1

Innovation domain

4. Added value VR

Within the code "Added value VR" the extent to which participants expect and experience VR to be of added value is discussed. Within this code, participants made both positive and negative remarks regarding the added value of VR before as well as after the training, nevertheless, most participants saw added value in VR overall.

4.1 Applications VR

The code "Applications VR" entails the participants expectations or experiences about when VR can be of added value and how it could be applied in practice to achieve these benefits. During all interview rounds, all participants mainly saw added value for VR as a tool for exposure therapy, for instance when treating anxiety disorders or psychosis. They expected VR to lower the threshold for exposure exercises as the environment can be controlled, offering a transition from the treatment room to real life, in which exposure can sometimes be too challenging. However, in the two interviews conducted after the training was finished, two participants reported that they were still searching for when VR would be of added value, as illustrated by the following quote:

> *"I do think that it can be valuable at some point during a process. It is a bit challenging to then decide: when is it of added value for somebody? […] When should you use it and when should you not? I think that also comes with more experience in practice."* – Participant 6

4.2 Suitability patient group

The subcode "Suitability patient group" addresses the extent to which participants expect or experience VR to be of added value for the patients within their caseload. Before the training, four participants expected that VR would be a good fit with their patient group and four participants expected some barriers as they thought VR might be too far out of the patients comfort zone. In the interviews conducted immediately after the training and three months later, participants reported mixed experiences. In practice, some patients were enthusiastic about using VR in sessions. Yet, some patients were ready to perform in vivo exposure which was preferred over VR exposure. Moreover, five participants reported that using VR with some of their patients brought specific challenges as they preferred predictability, were avoidant or were not always adherent to therapy, as illustrated by participant 2:

> *"I started using VR with a woman with borderline personality disorder. She was really open to it, but she was getting more and more symptoms of anxiety. She stopped showing up and it was difficult to reach her. So there kept being a reason why it did not work. […] VR is no longer the most suitable option right now."*

5. Challenges VR technology

The code "Challenges VR technology" highlights the extent to which the flaws of VR technology have had an influence on the implementation process. The interviews revealed that the functioning of the technology was flawed, which significantly impacted its use in practice.

5.1 User-friendliness VR

Within the subcode “User-friendliness VR”, participants discussed the extent to which they expected or experienced the VR technology as complex and difficult. Across all interview rounds, four participants commented that the CleVR system required too much time to prepare, organize, and set up, which often led them to choose another type of treatment, see the quote below:

> *“It still takes a lot of time now, for a VR session of an hour, I now also have to prepare for an hour when taking it all together. If I am very busy, I am quick to think: Yeah never mind.”*
>
> – Participant 1

Besides this, three participants noted in the two interviews conducted after the training that the soft- and hardware of the technology was not intuitive and difficult to use. They suggested improving the technology by making it more robust, and make adjustments that allow for spontaneous use, instead of the elaborate set up that is required now.

5.2 Malfunctioning VR system

The code “Malfunctioning VR system” concerns the extent to which the VR set fails in practice due to hard- or software errors and the impact of this failure on VR use in practice. Directly after the training and three months later, six participants were critical as malfunctioning of the system took up too much of their attention and time, as this interrupted and delayed sessions and left participants to frequently call the help desk. Even though the help desk was able to quickly resolve the problems, two participants were demotivated by the malfunctioning system, as they were mostly struggling with the technology instead of it being helpful. Three participants also reflected that this was especially difficult when sitting across from their patients, as illustrated by the quote below:

> *“It did not help that the system had so many malfunctions that caused me to run into something frustrating every time I started using it. Definitely when you are sitting with a patient, because I was spending half of the time trying to make it work properly. That is really the biggest barrier for me.”* – Participant 3

5.3 Limitations virtual environments

Within the code “Limitations virtual environments”, participants discussed the extent to which participants expect or experience the look, feel, and possibilities of the virtual environments as limiting when using VR in practice. Across all interview rounds, five participants commented that the number of possible environments were limited which was considered as restricting as they felt exposure therapy sometimes required highly specific environments. Additionally, participants were unsure if the

environments of CleVR were realistic enough to be effective. However, participant 8 mentioned that this might not be necessary:

> *"Yeah, maybe it does not need to be that realistic. I noticed that my client could imagine it just fine and that it really increased tension when she was sitting next to somebody in the bus in VR. So, maybe it does not matter that much. As a spectator you do not think it looks realistic, but the client experiences it as real."*

Individual domain

6. Capabilities

The code "Capabilities" relates to participants' confidence about their skills and knowledge about using VR in practice. Directly after the training, six participants expressed that they felt capable enough to perform VR therapy. Nonetheless, they acknowledged that it would take time to get comfortable and confident with VR therapy, and that they would still need support. Participant 2 described their experiences as follows:

> *"It is the same when you have your licence, and you just bought a car that is not exactly new. Then you have some issues along the way and sometimes you have to call the emergency centre. It is just trying it out, I think. So, I will do that, it just takes some getting used to and I think you can never really take that away."*

Three months after the training, all participants reported feeling capable enough to use VR in practice. However, one participant experienced difficulty deciding when VR would be suitable for a patient due to their little experience.

7. Motivation

The code "Motivation" relates to the extent to which therapists are motivated and have the intention to use VR in the future. Immediately after the training, six participants commented that they still planned to use VR in the future. However, three months after the training no participants were using VR on a regular basis anymore. Participants were still open to using VR in the future if the number of referrals for VR therapy increased and if VR was the most fitting option for the patient, as illustrated by the quote below:

> *"Yes, I do still have the intention to use VR. This is mostly dependent on the right person and treatment goal. If it fits well with that, then I certainly have the intention to do it."* – Participant 5

Outer setting domain

8. VR in mental health care

The only code related to the outer setting, "VR in mental health care", concerns the extent to which the participant believes that VR will become an integrated part of mental health care delivery. Overall, nine participants did support the choice of the organisation to invest in VR and keep up with developments. They believed that innovations, including VR, will grow out to be an integrated part of mental health care delivery in the Netherlands. As illustrated by participant 5:

> *"I do expect that it [VR] will become bigger within mental health care, because everything is becoming more technical and moving into that direction. So I cannot really imagine that this will become smaller or disappear. I do think it will be developed more and more and that it will become more extensive."*

Phase 2: Recommendations and validation

In phase 2, the second research question will be answered: *What are points of improvement for the organisation when supporting therapists before, during and after VR training?* Within this section, the recommendations for organisations are described. In total, six recommendations were created that each relate to several influential factors that were found in phase one of this study. Table 3 provides an overview of each recommendation and its associated codes. Additionally, the results of the validation of the recommendations with the VR therapists will described in this section.

Table 3 - Overview of the recommendations and the codes they relate to.

	Recommendation	Codes
1	Inform participants about VR before training and/or set conditions for training participation	1.4, 2.2, 3, 4.1, 4.2, 5.3, 7
2	Ensure referrals are made for VR by increasing knowledge about VR throughout the organisation	1.4, 2.1, 2.2, 7
3	Spread the vision of the organisation on VR use in practice	1.4, 2.1, 2.2, 3
4	Actively stimulate VR use in practice after training is completed	1.1, 1.2, 1.3, 1.5, 3
5	Integrating VR in standardized processes and protocols	1.1, 2.1, 2.2, 7
6	Support newly trained therapists by ensuring that practical preconditions are met	1.2, 1.3, 7

Recommendations

1. Inform participants about VR before training and/or set conditions for training participation

It is recommended that organisational management sufficiently informs future training participants on the potential of VR therapy, to enable them to make a substantiated decision to participate in the training. Additionally, post-training requirements that support implementation could be considered, such as requiring participants to integrate VR into their practice for a minimum of one hour per week.

2. Ensure referrals are made for VR by increasing knowledge about VR throughout the organisation

It is recommended that organisational management aims to increase knowledge about VR amongst those who did not receive training to ensure that more referrals for VR therapy are made. This could be accomplished by sharing success stories which can help increase enthusiasm and awareness about VR throughout the organisation.

3. Spread the vision of the organisation on VR use in practice

It is recommended that organisational management invests in sharing their vision on VR use in practice. Ideally, this vision clearly addresses the value of VR from the patients perspective. One way that organisations could achieve this, is by moving towards a flatter organisational structure. This would encourage the involvement of employees and increase the idea of having a shared vision.

4. Actively stimulate VR use in practice after training is completed

It is recommended that managers, and especially team leaders of the VR therapists, are involved in the implementation of VR and actively follow up on the use of VR. For example, by regularly asking therapists about their experiences with using VR in practice and providing them with the right support (e.g., help organise intervision).

5. Integrating VR in standardized processes and protocols

It is recommended that organisational management invests in integrating VR in standard documents and work processes, such as treatment protocols and multidisciplinary meetings, early on during the implementation process. This can help to serve as a reminder when VR might be helpful and thus likely increase VR use in practice.

6. Support newly trained therapists by ensuring that practical preconditions are met

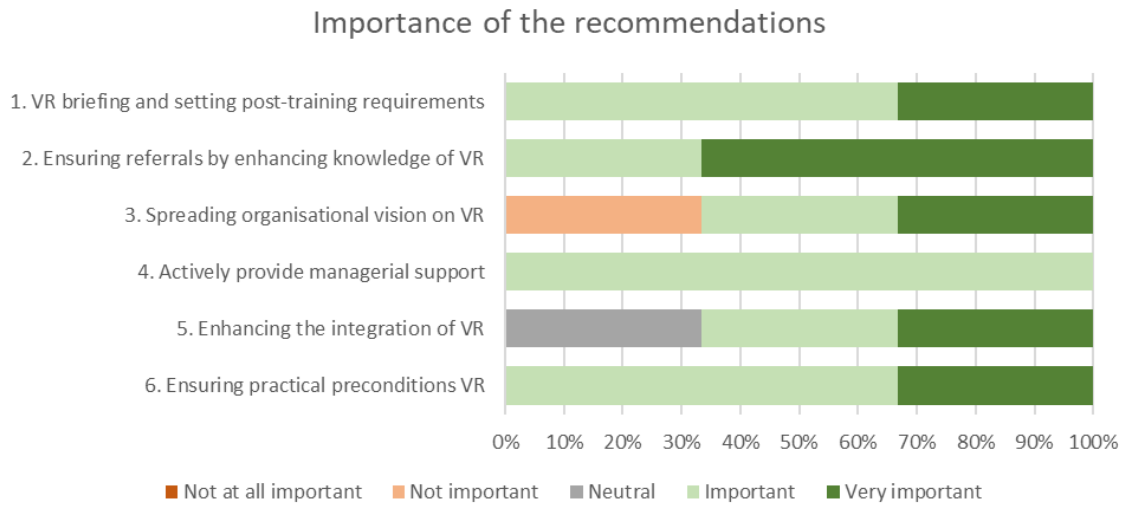
It is recommended that organisations ensure that the practical circumstances required for satisfactory VR use are provided for. It is especially important to provide therapists with sufficient time and to make the VR set easily accessible.

Validation with participants

The questionnaire that aimed to validate the recommendations with newly trained VR therapists showed that all three participants regarded the following recommendations as (very) important for the implementation process: informing future training participants about VR and setting conditions for participation (Recommendation 1); increasing knowledge to facilitate referrals (Recommendation 2); providing active managerial support (Recommendation 4); and ensuring that practical preconditions are met (Recommendation 6). One participant did not regard a clear vision of the organisation on VR to be important for the implementation process (Recommendation 3), however they did not provide a reason for this. Another participant was neutral about the importance of integrating VR in standardized processes and protocols (Recommendation 5), as these were not always suitable for the patient group treated by their team. A more detailed overview of the survey results can be seen in Figure 4.

In the final question, participants were asked if they had any remaining recommendations for the organisations, and several suggestions were made. One participant stressed that they felt success stories were likely to increase VR. Another participant suggested having intervision for VR throughout the organisation and using patient experiences to help convince other patients to give VR a chance for their treatment.

Figure 4 - Results of the survey aimed at validating the recommendations with participants.



Adaptations recommendations

Based on the results of this questionnaire small adjustments were made to the recommendations shown above, however as most therapists agreed with the recommendations no major changes were required.

4. Discussion

This study aimed to describe the best practices for organisations when supporting newly trained therapists by first identifying organisational factors that impacted VR use in practice; after which areas of improvement were identified. These results were translated to a total of six recommendations for organisations, to provide practical guidance on how to best support newly trained VR therapists.

The first recommendation concentrated on informing future training participants on the possibilities of VR, as the results indicated that there was a mismatch between participants expectations and the use of VR in practice. Additionally, organisations are recommended to set post-training requirements for the VR-use of training participants as this was expected to give a sense of responsibility, which would likely increase VR usage. However, the results showed that some therapists were reluctant to mandatory VR use as it would decrease their autonomy. This is in line with findings of Feijt et al. (2018) who found that experienced pressure to use e-Health in mental health care could lead to resistance among therapists. Therefore, it is recommended that more research is done to better understand the found contradiction in therapists attitudes with regards to mandated use.

The second recommendation focused on increasing knowledge about VR throughout the organisation, as this would enable untrained therapists in deciding when VR would be suitable which would likely increase the number of referrals for VR therapy. The results indicated that this group was not addressed sufficiently during the implementation process, even though they seem to hold a key position. This underlines the importance of ensuring that all relevant stakeholders are involved and considered during the implementation process (Handley et al., 2016; Kouijzer et al., 2023; Moullin et al., 2020).

The importance of the organisational vision for the implementation of VR was stressed in the third recommendation. Therapist felt that a clear organisational vision was lacking, which was experienced as demotivating. This is supported by previous findings which also report that top management support and a shared vision, or lack thereof, impact implementation outcomes within health care, for example due to its large impact on the allocation of resources (Faber et al., 2017; Lau et al., 2015).

The fourth recommendation highlighted the importance of active managerial support for the implementation process. Previous studies also addressed the importance of lower- and middle-management support as they, among other factors, play a key role in translating the organisational vision to individual employees and creating a supportive environment for implementation (Aarons et al., 2014; Birken et al., 2012; Urquhart et al., 2014). Aarons et al. (2014) reported that especially the

agreement between all levels of organisational management, when deciding to implement an innovation, was crucial to achieve implementation success, indicating that recommendation three and four might be intertwined. Therefore, more research is recommended to gain a better understanding of the relation between managerial support and organisational vision and how they, both separate and together, influence implementation outcomes.

The fifth recommendation demonstrated the importance of integrating VR in standard processes and documents, as this was expected to help remind therapists of VR when deciding on treatments. This recommendation is supported by previous findings as the lack of integration of an innovation in standard processes showed to impede implementation, and good integration within organisational processes was found to be key for sustainable implementation (Feijt et al., 2018; Greenhalgh et al., 2017; Kip et al., 2023; Kouijzer et al., 2023).

The sixth recommendation focused on ensuring that the practical preconditions needed for sufficient VR use in practice are provided for. The results demonstrated that especially having sufficient time and easy and quick access to the VR set were key to VR use in practice. This aligns with implementation and technology adoption frameworks and models, such as the CFIR or the Theoretical Domains Framework, which also address the importance of having sufficient organisational resources (Michie, 2005; Venkatesh et al., 2003).

The validation of the recommendations with newly trained VR therapists showed that participants mostly considered the recommendations to be (very) important for VR implementation, indicating that these recommendations could be beneficial for the VR use of newly trained therapists.

When looking at the results collectively they indicate that the adoption of VR by newly trained therapists was especially impacted by the degree to which organisational management effectively fulfilled their stimulating (e.g., the need for organisational vision and organisational awareness for VR) and facilitating role (e.g., the need for integration of VR into standard processes). Consequently, the results highlight the importance of taking contextual factors into account when implementing VR, especially as VR requires adaptations to be made throughout the entire organisation. The importance of addressing contextual factors during implementation is widely acknowledged within the field of implementation science, which is why multiple implementation frameworks were designed with a multi-level approach in mind, such as the CFIR or the Non-Adoption Abandonment, and challenges to the Scale-Up, Spread, and Sustainability framework (NASSS) (Damschroder et al., 2022; Greenhalgh et al., 2017; Lau et al., 2015; Nilsen, 2015; Nilsen & Bernhardsson, 2019). However, findings of this study and a review of reviews conducted by Lau et al. (2015) demonstrate that organisational context often receives little attention in practice. Westerlund et al. (2019) argued that this might be caused by a

research-practice gap and suggested that more efforts could be made to transfer the knowledge within the implementation sciences from researchers to those implementing in practice. An example of such a translation could be the NASSS-CAT toolkit, which is a combination of the NASSS framework and the Complexity Assessment Tool (CAT) (Greenhalgh et al., 2020). The toolkit provides practical guidance in planning and managing implementation processes in practice. A Dutch version tailored to the Dutch legislation has also been created (*NASSS Toolkit*). Such toolkits might hold promise to support organisations in taking a theory-driven approach when aiming to implement innovations in practice, however more research is needed to evaluate whether such practical toolkits improve the adoption of innovations in practice.

Furthermore, the results indicated that employing an expert team, a select number of therapists with dedicated time for VR to whom others refer patients if VR is indicated, might be a valuable implementation strategy. These teams proved to be effective in increasing VR use within other mental health care institutions in the Netherlands (Koenis & CleVR, 2024a, 2024b). Comparable roles such as champions and opinion leaders, are already proven to be effective implementation strategies, making the concept interesting to explore (Curran et al., 2005; Wood et al., 2020). Yet, more research is needed to specify how expert teams should be employed to serve as an effective implementation strategy. Several studies have already evaluated the process of implementing new clinical roles in health care, as these findings could also apply on the implementation of expert teams, organisations are recommended to consider these findings when planning to implement an expert team in mental health care (Jones, 2005; Roberts et al., 2019).

Strengths and limitations

During this study, the interviews were analysed by combining a deductive, top-down approach by using the CFIR, with an inductive, bottom-up approach. The combination allowed for a structured, theoretical approach while still enabling us to reveal patterns and topics that might not have been considered beforehand. However, using the CFIR was challenging when dealing with complex topics that emerged from interactions between different domains as the CFIR does not provide ways to represent these interactions. This complexity especially applies to the implementation process domain of the CFIR and as a consequence no codes were assigned to this domain. Nilsen et al. (2015) addressed this issue as well, and stated that the CFIR and other determinant frameworks often implicitly assume direct linear relationships between implementation determinants and outcomes and therefore often ignore interactions between these determinants (Nilsen, 2015). It is recommended that more research

is done on how one can represent these interactions within determinant frameworks to create a more realistic overview of the implementation process.

The dataset that was used during this study was created during a longitudinal study which provided insight into how the needs and experiences of newly trained therapists changed over time. However, as this study performed a secondary analysis, the data that were used were gathered using interview schemes designed to answer different research questions than those posed in this study. This might have caused us to miss important information that would have become clear with a more tailored interview scheme. To reduce the risk of missing information, the results were validated with the study participants and they were given the opportunity to make suggestions or remarks on the results of this study. This validation also served to reduce the risk of researcher bias, as the analysis and translation of results to recommendations were reliant on the interpretations of the researcher (Birt et al., 2016). Additionally, the interview data that were used were gathered within a single mental health care organisation, which might reduce the generalizability of the results to other organisations. Therefore, it is recommended that research is done with other organisations to validate these findings.

Lastly, recommendations made within this study were focused on organisational factors and solely based on interviews with newly trained VR therapists. As a result, it is improbable that all contextual factors that impacted the implementation process were addressed in this study. Hence, the recommendations that were made in this study should be seen as a starting point for organisations to address contextual factors rather than a complete overview. Therefore, it is recommended that future research is done to identify the best practices when addressing contextual factors other than the organisational context. Additionally, it is recommended that future research ensures that perspectives of all relevant stakeholders are considered as this helps to gain a comprehensive understanding of the implementation process (Lau et al., 2015; Nilsen & Bernhardsson, 2019).

Conclusion

This study addresses the importance of considering the organisational context when selecting strategies for the implementation of VR in practice. When supporting newly trained VR therapists, organisations are recommended to focus on their stimulating role by sharing a clear vision on VR use, increasing organisational awareness for VR, and by providing managerial support. Additionally, organisations are encouraged to embrace their facilitating role, which also includes the integration of VR in standard processes and thus goes beyond ensuring that the practical preconditions are met. This study emphasizes the need for addressing contextual factors during the implementation process, as these could be key for successful implementation outcomes. Future implementation efforts should be

made with a holistic, multi-level approach in mind to ensure a comprehensive understanding of the context before selecting implementation strategies which eventually will increase the chances of successful implementation.

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Appendix A: Interview schemes of the study of Kouijzer et al. (Manuscript in preparation)

Interview protocol - Round 1

1. Fijn dat je tijd kon vrijmaken en wilt deelnemen aan deze interviews gerelateerd aan VR-scholing.
2. Het doel van deze reeks interviews is om inzicht te krijgen in je verwachtingen en ervaringen met betrekking tot de VR scholing en de inzet van VR in de praktijk. We willen met deze informatie de implementatie van VR verbeteren en alle aandachtspunten uit deze interviews nemen we mee ter verbetering van dit proces.
3. Ik ben als onderzoeker niet persoonlijk betrokken bij de opzet van deze scholing of de uitvoering daarvan. Mijn rol is in die zin heel neutraal en objectief en ik ben alleen geïnteresseerd in eerlijke en open feedback van behandelaren. Voel je dan ook vrij om een kritische blik te geven over de scholing en weet dat ik me niet persoonlijk aangevallen zal voelen.
4. We willen de audio van deze interviews graag opnemen, zodat we je antwoorden kunnen uitschrijven. Alle resultaten worden anoniem verwerkt en zijn niet meer terug te herleiden naar jou als behandelaar Vind je het goed dat we dit gesprek en de komende gesprekken opnemen?
5. Dan vraag ik het je nog een keer, nu de opname aan staat:
    - Ben je akkoord dat we dit gesprek opnemen?
    - Heb je nog vragen of zijn er dingen onduidelijk voordat we het interview starten?

Interview 1 – Pre-VR scholing	
Thema	**Vragen**
Demografische gegevens behandelaar	• Kun je vertellen wat je huidige **functie** is? • Hoeveel jaar **werkervaring** heb je binnen dit vakgebied? • Met welke **doelgroep** werk je en wat voor soort **behandelingen** bied je aan?
Ervaring & Mening VR	• Heb je **eerdere ervaringen** met VR? Heb je ooit met deze technologie gewerkt? • Hoe denk je dat VR zou kunnen **bijdragen** aan je werk als behandelaar? • Welke **drempels of barrières** verwacht je die het gebruik van VR in de weg zouden kunnen staan? • In hoeverre heb je het gevoel dat het gebruik van VR **gestimuleerd** wordt vanuit management/organisatie?
Verwachting scholing	• **Wat vind je** ervan dat er een scholing wordt georganiseerd voor het gebruik van VR in de behandelpraktijk? • Wat zijn je **verwachtingen** van de VR scholing? • Welke specifieke **activiteiten verwacht** je of waar hoop je op?

→ **<u>Globale uitleg opzet scholing</u>**

*VR scholing bestaat uit **6 bijeenkomsten** waarin je met een **groep** leert over de **inzet** van VR, de **toegevoegde waarde**, de verschillende **mogelijkheden** en hoe je dit in een behandeling met cliënten kunt **inzetten**.*
*Je voert elke bijeenkomst **opdrachten** uit en tenslotte zet je een VR behandeling op samen met een **cliënt**. Dit neem je op op **video** en hier schrijf je een **verslag** over.*
*Je werkt samen in een groep, sluit aan bij **intervisiegroepen**, en werkt voor een deel **zelfstandig**.*

- Wat zijn de verwachte **voordelen** van de scholing?
- Wat zijn mogelijke **barrières** of nadelen van de scholing?
- Kan je proberen een aantal **doelen** voor jezelf op te stellen die je wilt bereiken met behulp van deze scholing? (*Deze doelen kunnen we dan in ons laatste interview samen gaan evalueren*)

- Ik wil graag kennis opdoen of vaardigheden leren over deze 3 onderwerpen:

- Ik wil X aantal uur per week/maand investeren in het leren gebruiken van VR:

- Ik wil graag X aantal VR sessies hebben gedaan na 6 maanden in een behandeling met een cliënt:

- Ik wil graag X aantal keer per week/maand oefenen met een collega:

- In hoeverre zijn er punten die voor jou op dit moment **niet duidelijk** zijn rondom de VR scholing of rondom dit onderzoek?
- Heb je verder nog **aanvullingen** die we nog niet besproken hebben tijdens dit interview?

- Dank voor je deelname en succes met de VR scholing! → Over een tijdje zal ik je mailen om het 2e en 3e interview alvast in te plannen, vlak na de scholing en de 3 maanden follow-up.

Interview protocol - Round 2

1. Dank tijd vrijmaken voor 2e interview.
2. Heel benieuwd naar je ervaringen met de VR scholing en het gebruik van VR in de praktijk.
3. Nogmaals: Voel je vrij om waar nodig ook een kritische blik te werpen en naast positieve ervaringen ook verbeterpunten te noemen.

- In dit interview vraag ik naar je eerste indruk van de VR scholing,
- Ik ga een lijstje met punten af waarover ik graag je ervaringen hoor: zowel positief als negatief
- Vervolgens kijken we of de scholing voldeed aan je verwachting of niet
- Ten slotte kijken we naar de doelen die je hebt opgesteld vorig interview: en of we dit moeten bijstellen of niet.
- Dan vraag ik het je nog een keer, nu de opname aan staat:
  a. Ben je akkoord dat we dit gesprek opnemen?
  b. Heb je nog vragen of zijn er dingen onduidelijk voordat we het interview starten?

Interview 2 – post-VR scholing **Mid implementation**	
Thema	**Vragen**
Eerste indruk scholing	• Kun je je **eerste indruk** van de VR-scholing met me delen? • Wat vond je het meest **opvallend of verrassend**?
Positieve punten en verbeterpunten	• Welke aspecten van de scholing vond je **positief** of nuttig? • Zijn er aspecten van de scholing die volgens jou **verbeterd** kunnen worden? 1. Inhoud/theorie? 2. Werkvormen/oefeningen? 3. Inhoudelijke ondersteuning/feedback? 4. Technische ondersteuning? 5. Leermaterialen? (map, presentatie) 6. Inzet praktijk? 7. Tijdsplanning? 8. Motivatie cliënten? 9. Motivatie collega's? 10. Intervisiegroep? 11. Overig?
Klopt de verwachting?	▪ Hoe verhouden je initiële verwachtingen van de scholing zich tot je **werkelijke ervaring**? • Zijn er aspecten in de scholing aan bod gekomen die je van tevoren **niet had verwacht**? • Heb je **aspecten gemist** in de scholing, die je graag had willen bespreken of willen leren?

Verwachting inzet VR

*Je hebt nu kans gehad om VR te ervaren en kort in te zetten in een behandeling. We bespraken vorige keer je verwachtingen van de scholing en we hebben een aantal **persoonlijke doelen** opgesteld.*

- Ik wil graag kennis opdoen of vaardigheden leren over deze 3 onderwerpen:
- Ik wil X tijd per week/maand investeren in het leren gebruiken van VR:
- Ik wil graag X aantal VR sessies hebben gedaan na 6 maanden in een behandeling met een cliënt:
- Ik wil graag X aantal keer per week/maand oefenen met een collega:
- Ik wil graag X aantal keer per maand/jaar deelnemen aan

Laten we samen kijken in hoeverre je je **doelen bereikt** hebt.

- In hoeverre heb je je **kennis en vaardigheden** ontwikkeld? Hoe heb je dat gedaan? Heb je daarvoor nog meer nodig ter ondersteuning?
- Heb je het gevoel dat je voldoende **tijd** krijgt/neemt om te investeren in het leren omgaan en inzetten van VR? Waarom wel/niet? Wat heb je daarin nodig?
- **Hoe vaak** heb je VR ingezet in de afgelopen periode? Bij hoeveel (en wat voor soort) **cliënten** heb je VR ingezet?
- Heb je geoefend met **collega's**? Waarom wel/niet? Wat haalde je daaruit?
- Heb je deelgenomen aan **intervisie** bijeenkomsten? Wat haalde je daaruit? En zo nee, waarom niet?
- In hoeverre denk je dat de gestelde doelen **realistisch** zijn? Is het nodig om deze doelen aan te scherpen voor de komende maanden? (E.g. aantal cliënten, aantal sessies, wanneer inzetten; specifiekere schatting dan vorige keer)

- Heb je verder nog **aanvullingen**?
  Dank voor je deelname en succes met de inzet van VR! 3e interview in april (dinsdag 9 april 13.30u).

Interview protocol - Round 3

Fijn dat je tijd kon vrijmaken en wilt deelnemen aan deze interviews gerelateerd aan VR-scholing. Het doel van dit interview is om te kijken hoe je de impact van de VR training ervaart op het behandelen met VR op de langere termijn. Daarnaast kijken we wat voor ondersteuning je nodig zou hebben gehad (of nodig hebt) op het gebied van VR.
Ik ben niet persoonlijk betrokken/ neutraal en objectief /voel je vrij om een kritische blik te geven.
We willen de audio van deze interviews graag opnemen, zodat we je antwoorden kunnen uitschrijven. Alle resultaten worden anoniem verwerkt en zijn niet meer terug te herleiden naar jou als behandelaar Vind je het goed dat we dit gesprek en de komende gesprekken opnemen?
Heb je nog vragen of zijn er dingen onduidelijk voordat we het interview starten?
Dan vraag ik het je nog een keer, nu de opname aan staat:

- Ben je akkoord dat we dit gesprek opnemen?

Interview 3 – Interviewschema follow-up **Late implementation**	
Thema	**Vragen**
Algemene ervaring & Behalen doelen	*De vragen in dit interview gaan over de **periode** die begint direct na de VR training tot nu. We beginnen met een algemene vraag en daarna gaan we in wat meer detail kijken.* • In hoeverre **gebruik je VR** op dit moment in je huidige behandelingen? • Heb je een idee **hoe het komt** dat je VR wel/weinig/niet gebruikt?
Behalen doelen	*Laten we kijken naar de aangescherpte **doelen** die we vorige keer samen gesteld hebben. Vandaag kijken we of deze wel/niet behaald zijn.* • Kennis/vaardigheden: wegzakken/afgezwakt? • Ik wil X tijd per week/maand investeren in het leren gebruiken van VR • Ik wil graag X aantal VR sessies hebben gedaan na 6 maanden in een behandeling met een cliënt • Ik wil graag X aantal keer per week/maand oefenen met een collega

Motivation	*De volgende vragen gaan allemaal over je **motivatie** om VR in te zetten in een behandeling en te integreren in je dagelijkse praktijk. We bespreken factoren die van invloed kunnen zijn op die motivatie.* • In hoeverre heb je het **gevoel dat je VR kan inzetten**? Voel je je **capabel en comfortabel** genoeg? (M - beliefs about capabilities) • In hoeverre heb je het idee dat VR van **toegevoegde waarde** kan zijn voor de behandeling met cliënten? (M- beliefs about consequences) • Vind je dat je VR **zou moeten inzetten** in de behandeling van cliënten? Waarom wel/niet? (M - goals) • Als je eraan denkt dat je VR moet gaan inzetten in je behandelingen: welk **gevoel** roept dat dan op? En waarom? (M - emotions) • In hoeverre heb je echt de **intentie** om VR in te gaan zetten in behandelingen met cliënten? Waarom wel/niet? (M - intentions) • In hoeverre heb jij het idee dat de inzet van VR echt hoort bij jouw **rol/functie** als behandelaar? Is dit een vast onderdeel van je takenpakket? (M- social/professional role/identity) • In hoeverre **geloof je** dat VR een **standaard onderdeel** gaat worden van de ggz? (M - optimism) Jij hebt nu tijd en energie geïnvesteerd in de VR training: In hoeverre **verwacht jij iets terug** te krijgen vanuit de organisatie voor je inzet om je te scholen tot VR behandelaar? Denk bijvoorbeeld aan een certificaat, of extra uren. Denk je dat dit zou helpen bij de inzet van VR? (M - reinforcing behavior)
Capability	*De volgende vragen gaan allemaal over of jij het gevoel hebt dat je VR **zou kunnen inzetten** in een behandeling en factoren die daarop invloed kunnen hebben.* • In hoeverre heb je het gevoel dat je voldoende **kennis en vaardigheden** hebt om VR in te zetten in de behandeling? (C - knowledge/skills) • In hoeverre denk je aan **VR als behandeloptie** wanneer je een behandeling met een cliënt start? (C - Memory, attention and decision process) • In hoeverre **plan** je van te voren dat VR een goede optie zou zijn bij een cliënt en voer je deze plannen dan ook uit? (C - Behavior regulation) • Kun je een **specifiek voorbeeld** delen van hoe je VR hebt geïntegreerd in je behandelingen sinds de scholing?
Opportunity	*De volgende vragen gaan over **externe factoren** die invloed hebben op jouw VR inzet. Denk aan de invloed van middelen die je tot je beschikking hebt, of de mening van collega's en cliënten.*

	• In hoeverre heb je het gevoel dat VR echt **speelt binnen de organisatie** waar je werkt? Is er aandacht voor? Staan mensen ervoor open? • Heb je het gevoel dat je inzet van VR beïnvloed wordt door de **mening of het gedrag** van je collega's, cliënten of management? (O - social influences) • In hoeverre heb je het **gevoel ondersteund** te worden bij de inzet van VR in je behandelpraktijk? (Vanuit teamleiders, management, collega's) • In hoeverre heb je het gevoel dat je inzet van VR ligt aan de **middelen** die je tot je beschikking hebt binnen je organisatie? Denk aan voldoende tijd, ruimte, apparatuur, tools/handvaten etc. (O - environmental context/resources)
Verbeterpunten implementatie	*We hebben nu allemaal factoren besproken die invloed hebben of hebben gehad op het gebruik van VR. Nu wil ik kijken of we nog wat concrete verbeterpunten kunnen bespreken die je nodig hebt, of zou hebben gehad om de inzet van VR te verbeteren.* • In hoeverre denk je dat de VR **scholing** heeft bijgedragen aan je **inzet van VR** in de afgelopen periode? • Wat is er nog **meer nodig** om je ondersteuning te bieden om VR in de praktijk te gebruiken? Welke **randvoorwaarden** zijn er? • **Door wie** moet dat geregeld worden/Wie zou daar **verantwoordelijk** voor moeten zijn?
Verwachting toekomst	*Als we kijken naar de toekomst…* • Verwacht je VR zelf te **blijven inzetten** in behandelingen met cliënten? Waarom wel/niet? • Heb je **overige punten** die je graag wilt bespreken? Heb je het gevoel dat we nog iets niet besproken hebben wat van belang is bij de implementatie van VR in de praktijk?

Appendix B: Questionnaire for validating the recommendations

Page	
1	

Aanbevelingen voor organisaties voor het ondersteunen van pas getrainde VR therapeuten

Ik ben Laura Koenis en doe op dit moment mijn afstudeeropdracht bij Transfore. In het kader van mijn onderzoek heb ik, op basis van een interview studie, aanbevelingen geschreven over hoe organisaties het beste pas getrainde virtual reality (VR) therapeuten kunnen ondersteunen, zie onderstaand.
Met behulp van deze enquête zou ik u graag willen vragen hoe belangrijk u denkt dat deze aanbevelingen zijn voor de implementatie van VR in de praktijk. Voor deze enquête is geen voorkennis nodig en de enquête duurt ongeveer 10-15 minuten. Uw antwoorden worden anoniem verwerkt en geanonimiseerde resultaten zullen worden gedeeld met de Dimence groep.

* Required

Aanbevelingen

1. Informeer deelnemers voor de training over VR en/of stel voorwaarden voor trainingsdeelname.
2. Zorg dat er genoeg patiënten worden doorverwezen voor VR therapie door kennis over VR binnen de organisatie te vergroten.
3. Verspreid de visie van de organisatie over VR gebruik in de praktijk.
4. Stimuleer actief het gebruik van VR in de praktijk nadat de training is afgerond.
5. Integreer VR in standaard protocollen en processen.
6. Zorg dat aan de praktische voorwaarden voor VR gebruik voldaan wordt.

Op de volgende pagina's wordt elke aanbeveling kort toegelicht en wordt uw visie daarop gevraagd.

2	**Algemene vragen** Met welke patiëntengroep werkt u? * Heeft u na afloop van de training VR ingezet met patiënten? * ◯ Ja ◯ Soms ◯ Nee Zet u VR nu (nog steeds) in met patiënten? * ◯ Ja ◯ Soms ◯ Nee

3

Aanbeveling 1 *(zie onderstaande omschrijving)*

1. Informeer deelnemers voor de training over VR en/of stel voorwaarden voor trainingsdeelname
Het wordt aanbevolen dat de organisatie ervoor zorgt dat deelnemers voorafgaand aan de training goed zijn voorgelicht over de mogelijkheden van VR, zodat ze een geïnformeerde keuze kunnen maken over of VR passend is bij hun caseload en werkwijze. Daarnaast wordt aangeraden dat de organisatie voorwaarden stelt aan de trainingsdeelname, dit kan bijvoorbeeld zijn dat een behandelaar tijdens het eerste jaar na afronding van de training verwacht wordt ten minste 2 uur per week VR therapie in te zetten.

In hoeverre denkt u dat aanbeveling 1 belangrijk is voor de implementatie van VR? *

Helemaal niet belangrijk	Niet belangrijk	Neutraal	Belangrijk	Heel belangrijk
◯	◯	◯	◯	◯

Kunt u kort toelichten hoe u tot het bovenstaande antwoord bent gekomen?

4

Aanbeveling 2 *(zie onderstaande omschrijving)*

2. Zorg dat er genoeg patiënten worden doorverwezen voor VR therapie door kennis over VR binnen de organisatie te vergroten
Voor een succesvolle implementatie is het belangrijk dat er genoeg patiënten worden doorverwezen voor VR therapie. Om dit aantal te verhogen wordt aanbevolen dat de organisatie kennis onder de niet getrainde behandelaren vergroot, bijvoorbeeld door succesverhalen te verspreiden. Zo kunnen collega's beter besluiten wanneer VR therapie is geïndiceerd.

In hoeverre denkt u dat aanbeveling 2 belangrijk is voor de implementatie van VR? *

Helemaal niet belangrijk	Niet belangrijk	Neutraal	Belangrijk	Heel belangrijk
◯	◯	◯	◯	◯

Kunt u kort toelichten hoe u tot het bovenstaande antwoord bent gekomen?

5

Aanbeveling 3 *(zie onderstaande omschrijving)*

3. Verspreid de visie van de organisatie over VR gebruik in de praktijk
Het is gebleken dat de visie van de organisatie vaak onduidelijk is bij de behandelaren, daarom wordt aanbevolen dat de organisatie investeert in het verduidelijken en verspreiden van de visie. Daarmee zijn de doelen van de organisatie duidelijk en worden er richtlijnen gegeven aan de behandelaren voor VR gebruik.

In hoeverre denkt u dat aanbeveling 3 belangrijk is voor de implementatie van VR? *

Helemaal niet belangrijk	Niet belangrijk	Neutraal	Belangrijk	Heel belangrijk
○	○	○	○	○

Kunt u kort toelichten hoe u tot het bovenstaande antwoord bent gekomen?

6

Aanbeveling 4 *(zie onderstaande omschrijving)*

4. Stimuleer actief het gebruik van VR in de praktijk nadat de training is afgerond
Het wordt aanbevolen dat de organisatie zorgt dat management het gebruik van VR stimuleert in de praktijk en opvolgt hoe de therapeuten dit in de praktijk ervaren, dit werd namelijk als motiverend ervaren. Dit kan bijvoorbeeld door simpelweg te vragen hoe het toepassen van VR in de praktijk de behandelaar bevalt.

In hoeverre denkt u dat aanbeveling 4 belangrijk is voor de implementatie van VR? *

Helemaal niet belangrijk	Niet belangrijk	Neutraal	Belangrijk	Heel belangrijk
○	○	○	○	○

Kunt u kort toelichten hoe u tot het bovenstaande antwoord bent gekomen?

7

Aanbeveling 5 *(zie onderstaande omschrijving)*

5. Integreer VR in standaard protocollen en processen
Het is aanbevolen dat VR vroeg tijdens de implementatie wordt geïntegreerd in standaard documenten en processen, zoals bijvoorbeeld behandelprotocollen en multidisciplinaire overleggen. Daardoor wordt VR minder snel vergeten, wat kan leiden tot een hoger gebruik van VR in de praktijk.

In hoeverre denkt u dat aanbeveling 5 belangrijk is voor de implementatie van VR? *

Helemaal niet belangrijk	Niet belangrijk	Neutraal	Belangrijk	Heel belangrijk
◯	◯	◯	◯	◯

Kunt u kort toelichten hoe u tot het bovenstaande antwoord bent gekomen?

8

Aanbeveling 6 *(zie onderstaande omschrijving)*

6. Zorg dat aan de praktische voorwaarden voor VR gebruik voldaan wordt
Het is belangrijk dat aan de praktische voorwaarden, die nodig zijn voor VR gebruik in de praktijk, voldaan wordt. Dit kan onder andere door tijd beschikbaar te maken voor behandelaren die zij kunnen besteden aan VR of door te zorgen dat de VR set makkelijk toegankelijk is.

In hoeverre denkt u dat aanbeveling 6 belangrijk is voor de implementatie van VR? *

Helemaal niet belangrijk	Niet belangrijk	Neutraal	Belangrijk	Heel belangrijk
◯	◯	◯	◯	◯

Kunt u kort toelichten hoe u tot het bovenstaande antwoord bent gekomen?

9	**Persoonlijke aanvullingen of opmerkingen** Heeft u andere aanbevelingen voor organisaties voor het ondersteunen van pas getrainde VR therapeuten? Heeft u andere opmerkingen over de vragenlijst en/of de aanbevelingen?