Identifying Barriers and Solutions for the Implementation of Interactive Virtual Reality in a Mental Health Organization

Master Thesis Health Psychology and Technology

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Abstract

Introduction: Interactive Virtual Reality (VR) technology is used more and more often in the field of mental health care. This technology creates a digital environment for patients to interact with, modelled to their specific situation. Interactive VR has shown great potential in early studies regarding several psychological disorders, such as psychosis and anxiety. However, this does not mean that mental health organizations will simply accept and adopt this technology. A complex implementation process needs to be executed. To help guide this process, several implementation frameworks have been developed, such as the *Consolidated Framework for Implementation Research* (CFIR). The aim of this study was to identify barriers of VR implementation experienced by therapists in a mental health organization and their accompanying solutions. These findings were used to verify and complement the existing implementation plan, constructed by the mental health organization. The CFIR was used as a guideline for the process.

Methods: A qualitative interview study among 8 employees of a Dutch mental health organization was conducted. These employees consisted of 6 therapists and two project leaders, all connected to the pilot phase of VR implementation inside the organization. Semi-structured interviews were held, which topics were derived from the domains of the CFIR. Participants were asked about their experiences and subjects which might have obstructed them to treat patients with VR. They were also asked how they dealt with these barriers. The interviews were digitally transcribed and manually edited, following the clean verbatim transcription rules. After that, a thematic analysis was conducted. By means of deductive coding, the statements were sorted in the pre-defined five domains of the CFIR. Then, the inductive method was used to define codes. The identified barriers and solutions were compared to the original implementation plan to verify and complement it.

Results: A total of 19 codes were identified, with corresponding barriers and solutions, divided over six themes. The first theme *Intervention Characteristics* contained the codes *complexity* and *cost*. The second theme *Outer Setting* contained the codes *developer*, *other mental health organizations*, *insurance companies* and *COVID-19*. The third theme *Inner Settings* contained the codes *integration in protocols, time management*, *location VR sets, storing of the VR sets, communication project leaders* and *organizational structures*. The fourth theme *Characteristics of Individuals – Therapists* contained the codes *self-efficacy*, *beliefs and knowledge* and *adaptability*. The fifth theme *Characteristics of Individuals – Patients* contained the codes *reactions of patients, eligible patients* and *travel to location*. The sixth and final theme *Process* contained the code *new therapists*. Several topics of the original implementation plan were verified, and several solutions were added, such as more focus on software during the training and a set number of hours to work on VR.

Conclusion: Implementing VR in a mental health organization is a complex process. This study found several barriers, related to all therapists or subgroups, and provides possible solutions. The CFIR is a good model to base an implementation plan for VR on. This study also found reasons to keep the views of therapists and patients in mind. Next to this, implementation plans need to be adaptable due to the needs of certain subgroups. All in all, this study contributes to the field of eHealth implementation by giving first insights in VR implementation and making notions about the construction of a VR implementation plan.

Keywords: Virtual Reality, eHealth, implementation, mental health, Consolidated Framework for Implementation Research (CFIR)

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Introduction

Virtual Reality (VR) is taking its place in the technological landscape of mental health care. The term 'Virtual Reality' refers to the use of computer technology to create a digital environment in which users reside. This environment substitutes the visual and sometimes auditory perceptions of their surroundings for digitally generated ones (Freeman et al., 2017). These senses are given by means of goggles placed on the user's head. Due to the fact that the system reacts to movements of the user, VR creates a sense of presence, the illusion of physically being in the digital place (Freeman et al., 2017; Riva, 2006). This kind of VR, in which users are fully immersed in a digital environment, can be roughly divided in two types: 360° VR and interactive VR. Both kinds show the user a completely digital environment, but the interactive VR allows for users to make alterations to this environment; to interact with it. This study will focus only on interactive VR. In mental health care, VR is mostly used for VR cognitive behavior therapy (CBT). By using VR, patients can find themselves in situations they experience as challenging without leaving the therapy room. Furthermore, the therapist can exert more control on those situations in comparison to real-life experiences (Kim et al., 2016). An example could be the number of people present at a park or in a bus. VR has been found to be influential or even beneficial for a broad range of mental problems, such as phobias (Botella et al., 2007; Emmelkamp et al., 2001; Krijn et al., 2004; Peñate et al., 2008), aggression (Klein Tuente et al., 2018), public speaking anxiety (Wallach et al., 2009), gambling addiction (Bouchard et al., 2017), binge eating and obesity (Riva et al., 2001, 2002), psychotic disorders (Pot-Kolder et al., 2018) or (social) anxiety disorders (Carl et al., 2019; Fodor et al., 2018; Geraets et al., 2019; Opriş et al., 2012; Turner et al., 2014; Valmaggia et al., 2016). This predicted effectiveness of VR in mental health care could be due to the patient feeling more safe (North et al., 1997) and more comfortable (Emmelkamp et al., 2002) in the digital environment than in real life situations.

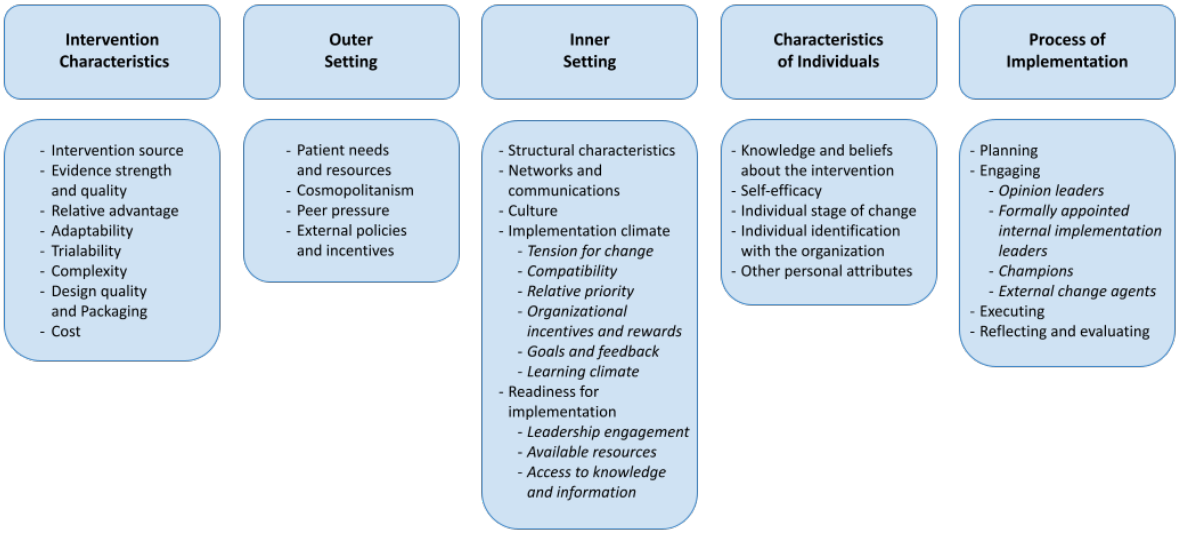
Though VR is a promising technology for treating certain psychological disorders, it is still not a commonly used technology in mental health settings (Brouwer, 2021). Like many other promising eHealth applications, with eHealth defined as the use of technology to support health, well-being and healthcare (van Gemert-Pijnen et al., 2018), therapists will not immediately adopt Virtual Reality in their treatment routine. The Dutch eHealth monitor shows that both the lack of acceptance and adoption are two of the main problems with eHealth applications (Krijgsman et al., 2016; Wouters et al., 2019). According to Schreiweis et al. (2019), several factors can inhibit the proper use of eHealth technologies in practice: individual barriers, environmental barriers and technological barriers. Examples of individual barriers mentioned in their study are lack of cognition, motivation, accessibility and trust. Environmental barriers could be finances, need for proof of the effectiveness of the application and questions on how the application will fit in the organizational structure of the company. The technological barriers are defined as all the technological problems the application could have, such as the language and security, but also options to seek support or whether the application's design fits the needs and wishes of the users. To improve adoption and counteract these barriers, specific attention needs to be given to the implementation of eHealth applications. Pieterse et al. (2018) even argue that implementation should be considered during the development process of an eHealth application. This shows that implementation is a complex process, and an implementation strategy is essential to get therapists to use VR as treatment.

To guide and evaluate implementation processes, many theoretical implementation frameworks have been developed, to help health professionals and institutions with pointers and actions. Examples

are the Technology Acceptance Model by Davis et al. (1989), the RE-AIM Framework by Glasgow et al. (1999) and the Diffusion of Innovation Theory by Rogers (2013). The *Consolidated Framework for Implementation Research* (CFIR), created by Damschroder et al. (2009) is a commonly used and broad implementation framework, which is based on several preexisting frameworks (Pieterse et al., 2018; Waltz et al., 2019). In this framework, 39 determinants of implementation are identified, divided over five domains. The first domain *Intervention Characteristics* focuses on all aspects regarding the intervention which is implemented. The second domain *Outer Setting* takes the influences from outside the organization into account. In the third domain *Inner Setting*, the context of the organization in which the intervention will take place is analyzed. The fourth domain *Characteristics of Individuals* focuses on all individuals involved with the implementation and their influence on the adoption of the intervention. The fifth and last domain *Process* looks at the implementation process in itself. The domains and their constructs can be found in Figure 1. The CFIR has been used in multiple studies to support and evaluate the implementation of various interventions, including eHealth applications. In the study of van Oers et al. (2020), the CFIR was used to evaluate the implementation an online Patient-Reported Outcome Measures, in which the CFIR provided input for a mixed-methods research of experienced barriers and possible solutions. In the study of Hadjistavropoulos et al. (2017), the process evaluation of an internet-delivered cognitive behavioral therapy was guided by the CFIR by means of a survey displaying the CFIR domains and asking participants to relate them to their intervention. Varsi et al. (2015) used the CFIR to identify barriers and facilitators influencing the implementation of an internet-based patient-provider communication service, by constructing semi-structured interviews based on the CFIR constructs. Each of these studies found the use of CFIR to be an essential addition to the implementation process, even though they made different use of the CFIR. Based on these findings, the CFIR seems to be a useful tool to support VR implementation processes, although not much is known of the workings of the CFIR regarding VR implementation.

Figure 1

The five domains of the Consolidated Framework for Implementation Research and their constructs (Damschroder et al., 2009)



Virtual Reality is a promising eHealth application for mental health care. Several Dutch mental health institutions are experimenting with VR or even using it in practice (GGZ Delfland, n.d.), but VR is not yet an available treatment option in most of the Dutch mental health organizations. This study is conducted to provide insight in the implementation of VR in a mental health organization, to understand the workings of the implementation process of VR and get insight in the optimalization of these processes on an organizational level. By interviewing therapists, their views and experiences were collected to get a broad overview of the whole implementation process. The CFIR was used as a tool by the organization to guide the implementation process and to create an implementation plan. This plan tried to find possible implementation barriers and solutions for these barriers. This study aims to identify experienced barriers and solutions at the end of a pilot phase of VR implementation, and to compare these findings with the predefined implementation plan. In turn, these results can help guide the full implementation process following the pilot phase. The following research questions were composed for guidance:

1. What are the barriers experienced by therapists while implementing VR in a mental health institution in their treatment routine?
2. Which solutions and activities are proposed by therapists to overcome these barriers?
3. What verifications and additions can be made to the existing implementation plan based on the identified implementation barriers and activities?

Methods

Context

In the Dutch mental health organization 'Dimence Groep', a VR application is being implemented. This application is developed by CleVR and uses software which allows therapists to control the digital environment. This can be done by for example modifying the number of avatars and making the avatars speak. A pilot phase has been initiated (February 2020) as part of the implementation process. Three project leaders (one researcher and two policy advisors) were appointed to guide the process. The two policy advisors worked within the department *DG Connected*, which focuses on the exploration and usage of new technology in the organization. The researcher worked at the University of Twente and at the Dimence Groep, in close connection with DG Connected. They focused their research on eHealth in the forensic mental health care, both their workings and implementation. These three project leaders have designed the implementation structure, identified stakeholders and they organized (stakeholder)meetings, facilitated practical matters and kept a general overview of the implementation. At the start of the project, they identified possible barriers and activities, using the CFIR as a guide, and formed an implementation plan. The barriers were formatted in tables, with a short description and potential solutions (see Appendix D). This implementation plan is based on both an implementation study conducted by the researcher (Kip et al., 2020) and their experience with comparable procedures.

The structure of the pilot phase can be broadly described in the following steps, based on the implementation plan. First, several therapists were acquired throughout the organization, to join the pilot phase. They needed to be acting practitioners at the Dimence Groep and preferably were interested in using the VR. Therapists were first introduced to the project and the concept of VR by means of meetings and were asked to join the pilot phase. Snowball sampling was used to find more participants, as some attendees of the meeting suggested people they thought were more suitable. After this selection procedure, six participants were found, who would train to use the VR system and pilot test it with their patients. Three of these therapists worked at the suborganization *Dimence* and three at *Transfore*. Dimence is focused on primary mental health care and has specializations regarding care for autism and ADHD, bipolar disorders and somatic unexplained physical complaints (Dutch abbr: SOLK). Transfore provides forensic mental health care for both in- and outpatients.

In July 2020, one day of training was provided for the whole team of the pilot phase by the developer of the VR system. During this training, they could learn the skills needed to work with the VR system. After the training day, the participants were given the opportunity to practice with the system before applying the VR to patients. The two available VR sets were located in Deventer and Almelo, in the main buildings. During the pilot phase, therapists had intervision meetings with each other and the project leaders. These meetings consisted of sharing experiences, to find topics the participants struggled with or discoveries they made. Information about the VR application could also be retrieved by mailing with the project leaders or searching in the online database, specifically developed for them.

The training day was postponed from April to July 2020, because of the COVID-19 pandemic. Due to this delay, social distancing and other COVID-19 regulations, practice sessions and therapy sessions with patients, as well as the intervision meetings were postponed as well. The interviews took place at the end of the pilot phase (April-May 2021) when most of the therapists had time to have practiced and treated patients with the VR set. At that time, new therapists were getting trained as well.

Study Design and Participants

To reach the research goals, this study had a qualitative, semi-structured design. This provides the freedom for the participants to elaborate on specific topics and for the interviewer to ask probing questions, but also provides the possibility to prepare the interview questions up front (Cohen & Crabtree, 2006). The topics were based on the domains of the CFIR. This study is approved by the Ethics Committee of the University of Twente (request number 210108).

In this study, a total of eight participants were included. Of those participants, six are therapists who joined the VR project in July 2020 and participated in the pilot phase. The other two participants are the policy advisors (further on mentioned as project leaders). This resulted in seven interviews, as the project leaders were interviewed together. Table 1 shows an overview of the participants.

Table 1

Overview of the participants

Participant #	Suborganization	Function	Treated patients with VR (if yes, #)
Participant 1	Transfore	Drama therapist forensic patients	No
Participant 2	Dimence	Psychologist mood and anxiety	Yes (1)
Participant 3	Transfore	Psychologist forensic outpatients (Former Psychologist mood and anxiety)	Yes (±3)
Participant 4	Transfore	Psychologist forensic outpatients	No
Participant 5	Dimence	Psychologist mood and anxiety	Yes (±5)
Participant 6	Dimence	Psychologist somatic unexplained physical complaints (Dutch abbr: SOLK) (Former Psychologist mood and anxiety)	No
Participant 7	DG Connected	Staff advisor research and innovation	N/A
Participant 8	DG Connected	Staff employee research and innovation	N/A

Procedures

Study Procedure

The project leaders reached out to the therapists by verbally asking them to cooperate on this research during their intervision meeting and reminded them by means of an email. After that, the therapists got in direct contact with the researcher by email. Appointments with the therapists were made either on their work location (6) or online in Microsoft Teams (1). Face-to-face meetings were preferred, but digital meetings were optional. Beforehand, an informed consent was signed by each participant (Appendix C). In face-to-face meetings, this consent form was signed on location. The audio of these meetings was recorded with a Zoom H1 Handy Recorder. If the meeting was digital, an online consent form was provided. The audio of the online meeting was recorded by the recording software of Microsoft Teams. When the participants agreed to the recording of the conversation, they gave in addition verbally consent to the interview on record. The average duration of the interviews was 48 minutes, ranging from 36-54 minutes. The interviews were conducted in Dutch, as that is the working language of the organization.

Interview Procedure

Therapists. First, a draft interview scheme was constructed using the online interview guide made by the authors of the CFIR (CFIR Research Team, 2020). This draft was tested and adjusted to focus more on possible barriers and solutions. The five domains of the CFIR were then used as a guideline to formulate the questions in this general direction. The interview scheme was structured as follows: First, an introduction and the goal of the interview was given. Then some introductory questions were asked, in which consent for the interview and recording was given. Next, two broad opening questions followed. After that, the questions were divided in two parts. These parts were based on time periods: before the VR training and after. An example question about the period before the training was: 'Before working with the VR set, which information about the VR set was provided?' An example question about the time period after the training was: 'What needs to be different in future trainings?' The complete interview scheme can be found in Appendix A (Dutch).

Project Leaders. The interview scheme for the interview with the project leaders differed slightly from the scheme used with the therapists. Some questions were removed, as they related to treating patients, and other question were added, such as: 'Which setbacks did you experience up till now with the project?' and 'What are the plans for VR in the future?' The complete interview scheme can be found in Appendix B (Dutch).

Implementation Plan

To verify and complement the original implementation plan set up by the project leaders, the results of this study are compared to it. This plan is set up in different tables, divided in the topics *therapists*, *clients*, *technology*, *organization* and *external factors* (see Appendix D). The implementation plan was read multiple times to get familiarized with the content and to comprehend the different terminology and design of the plan. The identified barriers and solutions from this study were matched with the (sub)topics and the activities mentioned in the implementation plan. The similarities and differences were marked, and new information was added.

Analysis

For the analysis, the application Amberscript was used to transcribe the interviews. Recordings of the interviews were uploaded to the software, which resulted in automatic transcripts of the conversations. All the transcripts were checked manually, to change errors and enhance the legibility. The transcripts were read multiple times to get familiarized with the data. After that, the sections containing statements regarding barriers and solutions were highlighted. Then these highlighted fragments were exported to a Microsoft Word file.

For coding the data, Microsoft Excel (Version 16.45) was used. The highlighted fragments from the Microsoft Word file were loaded into the program and sorted. The first part of the analysis consisted of deductive coding (Boeije, 2009; Hsieh & Shannon, 2005); assigning the fragments to the five domains of the CFIR (Intervention Characteristics, Outer Setting, Inner Setting, Characteristics of Individuals and Process). These domains functioned as main themes. From those lists, a code scheme was created using thematic analysis (Braun & Clarke, 2006) in the inductive coding style (Boeije, 2009; Hsieh & Shannon, 2005), by applying the relevant steps of the constant comparison method (Boeije, 2002). This style leaves room for the extension of the domains. Each domain was assigned its own codes, based on the first three interviews. The codes were defined, then compared with the other interviews, and refined till they became mutually exclusive. Quotes were manually translated to English by the researcher and sometimes paraphrased to circumvent figure of speech and to enhance legibility, following the rules of clear verbatim transcription. Before finalizing this report, participants had the opportunity to react to their quotations and the findings presented.

Results

In this section, each theme is reported separately, and each code section is divided in two paragraphs. The first paragraph is focused on the barriers mentioned and the second on the accompanying activities and solutions, matching the first and second research question. The last section will focus on the third research question, the verification and complementation of the initial implementation plan.

Theme 1: Intervention Characteristics

This theme contains all statements regarding the intervention in itself. The main and subcodes for this theme can be found in Table 2.

Table 2

Overview and definitions of the codes related to Theme 1: Intervention Characteristics

Main and sub codes	Definition of the code	Total[a]	Ther. (T)[b]	Ther. (D)[c]	Proj.[d]
Complexity	The complexity of using the VR system as a new user	6 (6)	3 (3)	3 (3)	0 (0)
Hardware	Practical problems and difficulties of using the hardware of the VR system	4 (5)	2 (3)	2 (2)	0 (0)
Software	Difficulty of using the software of the VR system; user-friendliness of the software	6 (6)	3 (3)	3 (3)	0 (0)
Cost	The costs to buy the license and hardware of the VR system	1 (1)	0 (0)	0 (0)	1 (1)

Note. [a]The total number of participants that mentioned the barriers related to this code and (#) the total number of statements made regarding this code. [b]The number of therapists from *Transfore* that mentioned the barriers related to this code and (#) the total number of statements made regarding this code. [c]The number of therapists from *Dimence* that mentioned the barriers related to this code and (#) the total number of statements made regarding this code. [d]The number of project leaders that mentioned the barriers related to this code and (#) the total number of statements made regarding this code.

Complexity

This main code refers to the statements made about the difficulty of using the intervention. This code has been split in the sub codes 'Hardware' and 'Software'.

Hardware

Experienced barriers. This sub code relates to the difficulties experienced concerning the hardware of the VR system. Most statements were made regarding the different components of the hardware and their

use. Mostly the microphone and the number of cables were mentioned as complicated. Especially the time it takes to set up and dismantle the whole set was mentioned as a barrier, which both can take up to a half hour or more during the first times therapists are working with the VR set.

Potential solutions. Participants mentioned the need to have a room in which the set can remain, so the set does not need to be set up and dismantled after every use. Another solution mentioned was calling the service desk of the developer for their problems when the hardware gets too complicated. Some therapists already used this option and were satisfied with the responses. Practicing with the set is also mentioned to help get familiarized with the hardware.

Software

Experienced barriers. All therapists indicated that working with the software was complex as well. There are a lot of settings that need to be applied to start and perform a treatment. Every therapist mentioned at least once the many options, buttons or settings and voiced some form of discomfort towards it. An example is the many options to select an emotion for the avatar to display. Moreover, all therapists mentioned they have trouble with controlling the software while treating a patient. They have to focus on both the patient and the software, which can lead to clumsiness and hindering of the treatment:

> *"You need to do a lot as VR therapist. You need to use the system with all the buttons, to use the microphone, you need to execute the role play and you need to observe the patient." (Part. 3)*

Potential solutions. In order to overcome these barriers, the therapists mentioned practicing with the VR set, on their own as well as with others. All of them view this as a useful addition, as they could learn from each other as well, especially regarding the options the software provides and possible mistakes:

> *"When you practice as acting therapist and miss a part, it is better to hear that from a colleague instead of making that mistake with a patient." (Part. 2)*

All participants felt that the training should have been longer and more focused on the use and application of the software. Lastly, two therapists mentioned that executing the treatment with two therapists instead of one could make working with all the different components easier, as one can focus the patient and the other on the software.

Cost

Experienced barriers. This main code refers to the costs related to the VR set. This code was not mentioned during the interviews with the therapists, but only during the interview with the project leaders. The cost of this VR set was the initial barrier for purchasing and using VR at the Dimence Groep, as the license and hardware were too expensive for the organization to invest in.

Potential solutions. As a solution for this initial barrier and the rapid changes in technological developments, the suborganization *DG Connected* was developed, which propagates investing in new developments and technologies to help improve health care. By means of this vision, money became available to invest in VR as well. Furthermore, it was mentioned that it takes time to make investors inside the organization see the relevance in purchasing new technologies. Making stakeholders acquainted with the technology was mentioned to be helpful as well.

Theme 2: Outer Setting

This theme is defined as all influences on the implementation process from outside the organization, ranging from political to societal. The codes can be found in Table 3.

Table 3

Overview and definitions of the codes related to Theme 2: Outer Setting

Codes	Definition of the code	Total.[a]	Ther (T)[b]	Ther (D)[c]	Proj.[d]
Developer	CleVR, the manufacturer of the interactive VR system and their influence on the VR implementation	0 (7)	0 (3)	0 (3)	0 (1)
Other mental health organizations	The relationship with other mental health organizations on the VR implementation	0 (2)	0 (0)	0 (1)	0 (1)
Insurance companies	The influence insurance companies on the VR implementation	1 (1)	0 (0)	0 (0)	1 (1)
COVID-19	The influence of the COVID-19 pandemic on the VR implementation	3 (4)	1 (2)	1 (1)	1 (1)

Note. See the note from Table 2.

Developer

Experienced barriers. The therapists mentioned CleVR, the manufacturer of the VR system, regarding the training and the support they provide. No barriers were mentioned.

Potential solutions. Concerning the activities, the therapists were content with the training and support they received when calling on the service desk, and think this needs to be continued. The focus of the training needs to shift from hardware to software though, according to most therapists. Some therapists did also mention the high pace of the training; that it should be slower. The service desk was mentioned by three therapists and was to their satisfaction.

Other mental health organizations

Experienced barriers. The project leaders mentioned another mental health organization as one of the reasons to start implementing VR. No statements describing barriers created by other mental health organizations were made by the therapists.

Potential solutions. An activity mentioned by Participant 5 is the provision of VR embedded protocols by another organization. These were very useful, according to them.

Insurance companies

Experienced barriers. The project leaders mentioned insurance companies as another barrier. As the technology is new, not all insurance companies will cover this treatment, according to the project leaders. They mentioned this complicated the implementation process in the registration of hours in the system, in which the insurance companies can find the provided care and pay the organization according to those hours. The program used to register hours is external and supervised by a lot of external workgroups, so it is a lot harder to change it. At the moment it also needs to distinguish between insurance companies, those who cover the treatment and those who do not, which complicates this process even more, according to the project leaders.

Potential solutions. No activities or solutions were mentioned., other than to upgrade the hour registration program.

COVID-19

Experienced barriers. This code refers to complications which were caused by the COVID-19 pandemic and the regulations that followed. The first and biggest complication according to the therapists was the disruption of the planning made for the implementation. Due to the initial uncertainty, working from home and later on the 1.5-meter measure, the training was delayed. This delay resulted in the fact that just after the training most employees had their summer vacation and had problems with recalling the training. Next to this, some therapists talked about feeling unsafe, during the treatment and traveling to and from the location, due to COVID-19.

Potential solutions. No activities or solutions were mentioned, apart from waiting till the pandemic has subdued and the regulations are loosened.

Theme 3: Inner Setting

This theme refers to all influences from inside the organization, from cultural to practical. The main and sub codes can be found in Table 4.

Table 4

Overview and definitions of the codes related to Theme 3: Inner Setting

Main and sub codes	Definition of the code	Total[a]	Ther (T)[b]	Ther (D)[c]	Proj.[d]
Integration in protocols	How the practical properties of the interactive VR can be applied in the treatment routine	2 (6)	2 (3)	0 (3)	0 (0)
Time management	The structural aspects of the time therapists spent on VR-related work	7 (7)	3 (3)	3 (3)	1 (1)
Production	The conflict for therapists to either treat patients or send time on VR	7 (7)	3 (3)	3 (3)	1 (1)
Priority	The need to focus on more urgent matters than working with VR	3 (3)	1 (1)	1 (1)	1 (1)
Location VR sets	The difficulties the location of the VR set creates for patients and therapists, travel time for example	7 (7)	3 (3)	3 (3)	1 (1)
Storing the VR sets	The wish for a permanent location of the VR set, either in a room or a storage closet	7 (7)	3 (3)	3 (3)	1 (1)
Communication Project Leaders	The way the project leaders relayed information about the VR implementation	2 (7)	1 (3)	1 (3)	0 (1)
Organizational structure	The influence of the organizational structure of the *Dimence Groep* on the VR implementation	5 (5)	3 (3)	1 (1)	1 (1)
Departments	The support services and other internal structures that need to be instructed and put into motion to implement VR	1 (1)	0 (0)	0 (0)	1 (1)
Colleagues	The untrained colleagues of the therapists, their view of VR and their influence on the implementation process	4 (4)	3 (3)	1 (1)	0 (0)

Note. See the note from Table 2.

Integration in protocols

Experienced barriers. This main code refers to all statements related to the practical application of the intervention into the treatment routine. Some therapists work protocolized, while others change protocols slightly to deliver care tailored to the patient. The three therapists working with protocols stated that when VR was added in the protocols, they had little difficulty to know when to use the VR set. The three therapists using tailored protocols had significantly more difficulty with applying VR:

> *"At Transfore it is more difficult, as we use protocols differently and do not really follow strict care pathways. At Dimence, for example with the department 'Angst en Stemming', there you know that this treatment is executed with those [symptoms], and often Cognitive Behavioral Therapy is conducted first. In my view, there you can more easily say: 'VR will be a standard that we'll implement.' But [at Transfore] it is actually searching per patient what you're going to do, which can differ a lot." (Part. 3)*

Potential solutions. For the protocolized treatments, the participants find that protocols with VR embedded are great solutions to apply VR in the treatment routine. The three participants with tailored protocols stated that a different form of protocol could be useful, which should entail the options the VR system offers linked to specific scenarios. For example, a description on how to assemble a role play and in which cases this can be useful.

Time management

This main code refers to the statements made about the time the therapists need to invest in learning and using the VR treatment and how they shape these hours working on VR. It is divided in the sub codes 'Production' and 'Priority'.

Production

Experienced barriers. This code is related to the structural aspects of the time therapists spent on VR-related work. Participants indicated that the hours spent on patient-related activities, or production, generate income, and hours spent on other activities do not. When therapists specifically use VR in combination with the patient (e.g., treatment, building up and breaking down the set), they can call these hours production, which should be 82,5% of their working hours. Every hour spent without a direct link to a patient (e.g., practicing VR with peers, researching VR) is not production. Participants indicated that this amounts to conflicting messages and pressure, mostly from their teams and their managers, and they struggle internally with this dilemma. Participant 6 indicates this:

> *"It is complicated, because a colleague, who would need to spend more hours on production, could have a [negative] opinion about [me spending less hours on production]. Or a supervisor does not agree with [me spending hours on VR]. […] Now you [work on VR] during hours which are open in your calendar or during lost hours, which makes it a lot more complicated. […] It does not feel [very supported], because it needs to be done quickly and in between." (Part. 6)*

Potential solutions. The participants sometimes found ways to deal with the production barrier, but not all solutions are desirable according to the participants. Three therapists used their free hours to work on VR and found time by being flexible. To be able to spend some of the working hours on VR, the supervisor of the employee needs to approve these hours, according to the therapists. They say that it depends on

the team and the supervisor if they will approve. The project leaders have worked on lowering this barrier, by talking to the employers. According to them, hours should be available. Some participants were indeed able to establish a set number of hours with their supervisor, but others were still having trouble with that. The project leaders acknowledged that supervisors can be a factor in this barrier. Participant 4 also mentioned the trouble of changing supervisors. One solution mentioned by Participant 6 can be to set a number of hours to spend on VR instead on production, and to make this a requirement for starting the training as new therapist. This could be compared to therapists who get hours to spend on research. Another proposed solution was reducing other non-patient hours, such as policy meetings, so the production can be maintained.

Priority

***Experienced barriers*.** Participants indicated that even if a certain number of hours is available, it still can be difficult to actually prioritize working on VR in those hours. Growing waitlists, combined with the aforementioned production norms, build pressure to fill those hours with treating new patients. Next to the waitlists, patients who are currently being treated sometimes need immediate attention, called patient crises by the therapists:

> *"It's in your genes: patients always come first. You're not going to practice when a patient calls and says: 'I'm having hard times'. You do not tell them: 'No, I can't help you right now'. Maybe you should, but I do not." (Part. 1)*

Potential solutions. Not many solutions were mentioned for this barrier, except the aforementioned set number of hours. Ideally, these VR hours should be periodically and pinned in therapists' work calendars. Therapists mentioned that even though they are very busy, they were always present at planned moments; they prioritized them. So when moments are pinned in their calendars, therapists think they could more easily work on VR, as they already have these moments planned. Participant 1 mentioned changing their attitude towards waitlists and patient crises can be an option, but that it is still hard, as therapists are programmed to help patients. The project leaders did mention that setting small personal goals for every intervision meeting had a positive effect, as this shows that even though finding time is hard, the therapists still managed to achieve these goals.

Location VR sets

Experienced barriers. The locations of the VR sets were mentioned to be a barrier for the therapists who do not work at the same location or in the same city. They said that the most inconvenient part is bringing the patients to these other locations, as some mentioned the location is either difficult to access, too far away or not safe enough to bring forensic patients. It was also mentioned that therapists from other locations are indirectly excluded from participating in learning the VR treatment due to this.

Potential solutions. To circumvent some of these problems, the VR set has been moved a couple of times to other locations by the project leaders. This solution is mentioned by the project leaders to be temporary and not suitable for the future. Some other solutions mentioned by them are to use the transport system of the organization or buying more sets.

Storing the VR sets

Experienced barriers. Even though some buildings are equipped with the VR set, multiple barriers are still experienced by the therapists. These barriers are related to practical difficulties, such as a reserved space where the VR set can be permanently located or a cabinet where the disassembled set can be stored. This way, the time needed to disassemble or set up the VR set can be diminished, and the therapists can focus more on treating patients. This barrier is also mentioned by the project leaders as a bottleneck, because a space and a storage location are needed to start treating patients with VR. This barrier is due to lack of space and impeding department policies, according to the project leaders.

Potential solutions. The most mentioned solution though is to get a specific room or a designated cabinet, in which the VR set can be permanently stored and used.

Communication Project Leaders

Experienced barriers. The therapists are all content with the communication of the project leaders:

> "*[The project leaders] were very facilitating, like 'I will fix that' or 'what do you need?' What I also found very pleasant was that they were understanding about the problems we ran into. […] It was action-oriented and not like 'what is it you're doing wrong' or 'find [the mistake] at your own (Du: zoek het even bij jezelf).' (Part. 4)*

The therapists did mention one point concerning the communication of the project leaders which they thought to be difficult. This was during the first meeting, in which the main goal was presented: achieving 1000 VR treatments at the end of the year. Participant 3, one of the interviewed participants who attended this meeting, said that this first meeting was overwhelming and made them doubt to join the pilot phase:

> *"I think we started enthusiastic, but we also came home perplexed after the first meeting. When we heard about the main goal '1000 VR treatments in a year', we thought 'what did we sign up for?' […] Panic arose a little and that took a little time [to settle down]" (Part. 3)*

Therapists who did not join this meeting still mentioned that this meeting could have prevented them into joining the pilot phase. This was also due to the outlined responsibilities, such as to help organize the conditions inside the organization, and the time the therapists needed to invest. The project leaders did not know if the first meeting really influenced the therapists, as they stated it could also be due to circumstantial factors, such as a previous team meeting in which time was a discussed topic.

Potential solutions. The project leaders changed the tone of the following meetings and changed outlined responsibilities. The project leaders think that in the future, someone from the group of therapists needs to take their place as a chairperson. This is so someone who uses the VR set can be the leading character, so the leading character can relate with the other VR therapists. Also, the project leaders can then focus on facilitating the practical needs, which is also essential according to the participants. The leading character will then keep up with the further development of VR in the organization and be the contact person for everything VR related.

Organizational Structure

This main code refers the statements made about the organizational structure, including different departments and colleagues, and their influences on the VR implementation. This code is divided in the sub codes 'Departments' and 'Colleagues'.

Departments.

Experienced barriers. This sub code encompasses internal departments such as management, logistics, financial, IT and facility services. According to the project leaders, all these departments need to be informed and instructed when implementing new technologies. Only the project leaders mentioned these departments, as they keep these contacts and make agreements with them about for example the locations of the VR sets. They mentioned that it is difficult for most of these departments to cooperate with the needed changes for the implementation of VR, because of the many processes already in place and the difficulty to diverge from the standard ways. The division of responsibilities also makes it hard to steer all the necessary departments in the right way for VR implementation:

> *"If someone needs to change or arrange something, whose responsibility is that? At the moment, it is my responsibility to arrange the registration, but the people at finance think 'how important is that project really?'" (Part. 7)*

Potential solutions. To lower this barrier, the project leaders invoke the vision of DG Connected: promoting technology inside the organization. This means that the higher management is backing the VR implementation, which can be used to back the requests made to these departments. With help and pressure from the higher management, which is outed in meetings of the respective departments, the project leaders think that in the end it will work out with these departments and it will be easier for them to cooperate. They also mentioned as reaction to the division of responsibilities that once these departments see that VR is a useful and more commonly used treatment, it will become important for them as well to facilitate the needed support.

Colleagues.

Experienced barriers. Untrained colleagues, who work in other disciplines, were also mentioned. They showed incomprehension about which disciplines would be able to treat with VR. This shows a possible lack of knowledge form colleagues about the VR and its use, which could negatively influence the motivation of the therapists currently working with VR. With no trained colleagues in their team, Participant 3 finds that it is harder to focus on VR, that they are not reminded to use VR.

Potential solutions. Promotion and information about the VR treatment aimed specifically at colleagues, in which it is made clear that different disciplines can use the VR set, could be a solution for the barriers according to Participant 1. Participant 3 thought that having more colleagues from their team being able to treat with VR will help, as during team meetings more people could remind them of VR treatment as an available option for new patients.

Theme 4: Characteristics of Individuals – Therapists

This theme focuses on everything related to the personal characteristics of therapists in the organization. This contains beliefs and attitudes, but also actions and behavior. The codes can be found in Table 5.

Table 5

Overview and definitions of the codes related to Theme 4: Characteristics of Individuals -Therapists

Codes	Definition of the code	Total[a]	Ther (T)[b]	Ther (D)[c]	Proj.[d]
Self-efficacy	The beliefs of the therapist that they are capable of executing the necessary behavior to properly start treating with the VR set	6 (6)	3 (3)	3 (3)	0 (0)
Beliefs and attitudes	The beliefs and attitudes of the therapists about the VR system, which can influence the implementation process	1 (6)	0 (3)	1 (3)	0 (0)
Adaptability	The flexibility and perseverance therapists need to learn to use the VR set	0 (2)	0 (1)	0 (1)	0 (0)

Note. See the note from Table 2.

Self-efficacy

Experienced barriers. This code relates to the beliefs of the therapists that they are capable of executing the necessary behavior to properly use the VR set and start treating patients. From the interviews it could be made up that not all therapists felt completely confident that they could use the VR set properly. An example of is made by Participant 5:

> *"I lacked and still lack [the technical skills] and at the moment I experience that as a demerit." (Part. 5)*

Potential solutions. Even though therapists believe this, they still started treating or planned to start in the near future. Participant 2 said that they started treating when they realized that it did not have to go perfect from the start:

> *"There are a lot of things you can do, but I try to ease myself thinking 'it doesn't have to be done all at once." (Part. 2)*

All stated that it is important to start treating patients as quickly as possible after the training, although it differed per therapist how quickly after the training they thought one should start treating. Some therapists thought this should be done almost immediately after the training, while others wanted to practice a couple of times with colleagues first. According to Participant 6, treating patients is the best way to learn and gain confidence, and that it is necessary to keep being open with the patient:

"I think you need to tell the [patient] that [VR] is a new treatment. I started here in January, and [this department] is completely new for me, especially the treatments. […] If you tell the patient that you are still figuring it out, […] it becomes something of us both. You cannot know everything and cannot have shaped everything from the start, as it will always go a little differently. (Part. 6)

Participant 4 also mentioned the biweekly intervision meetings to be raising confidence, as they felt secure that if something did not work, that more people had that experience. At these meetings, the therapists could relate to each other. Another solution for the lack of self-efficacy, mentioned by Participant 3, is using two therapists to treat with VR, as they think this way not every therapist will need to feel confident to use the VR treatment.

Beliefs and attitudes

Experienced barriers. This code refers to the beliefs and attitudes the therapists have of VR treatment. Every therapist stated that they view the VR treatment as a positive addition to the current treatment plans. These beliefs did not originate from the same starting points, as not every therapist had actively sought to research the effect of the VR set prior to joining the VR project and thus had little to no background knowledge about VR. Most heard about the effect and positive results in the first meetings with the project leaders. Participant 5 had researched the intervention themselves before joining the project. They mentioned that they needed this to believe that the VR treatment could be effective.

Potential solutions. Accurate and sufficient information needs to be provided, according to therapists. They indicated that they haven't missed any important information. The project leaders said that information can be found in an online folder, but also asked after during intervision meetings or by mailing the project leaders. Also, the first meeting was mentioned to give useful information for the pilot phase.

Adaptability

Experienced barriers. Other attributes the therapists mentioned were flexibility and perseverance. They had to be flexible when they needed to plan their hours working on VR. They sometimes needed to work on VR outside their working hours. They thought this to be logical due to the fact that they needed to learn a completely new technology and this process can take a long time. Due to this fact, therapists mentioned that a certain perseverance from therapists is necessary and this could be a barrier if therapists are lacking these skills.

Potential solutions. A solution mentioned for this barrier is sharing this key information during the recruitment of new therapists, so new therapists can make a considered decision to join and if they have got the time and energy to learn treating with VR.

Theme 5: Characteristics of Individuals – Patients

This theme refers to the patients involved in and their influence on the implementation process. The codes can be found in Table 6.

Table 6

Overview and definitions of the codes related to Theme 5: Characteristics of Individuals - Patients

Codes	Definition of the code	Total.[a]	Ther. (T) [b]	Ther (D)[c]	Proj.[d]
Reaction of patients	The feedback patients gave on the VR treatment, how they reacted	1 (3)	0 (1)	1 (2)	0 (0)
Eligible patients	The difficulty therapists experience when determining which patient should be treated with VR	2 (4)	2 (2)	0 (2)	0 (0)
Traveling to location	The problems patients experience when they need to travel to different locations than their normal treatment location	4 (6)	3 (3)	1 (3)	0 (0)

Note. See the note from Table 2.

Reaction of patients

Experienced barriers. This code refers to the feedback patients gave on the VR treatment after their first use and the impact it had on their daily lives. One patient was mentioned to be negative towards the VR intervention. Participant 5 talks about a patient who has a high level of avoidance and probably did not want to engage the VR treatment, as the tension could be too high. They did not mention this to be a barrier for themselves to continue treating with VR.

Potential solutions. The therapists who treated patients underlined that the many patients' positive reactions made them more enthusiastic. They remarked that these patients are positively surprised by the treatment and its effect. This is also shown when Participant 3 talked about not having a patient at the time, that they lost focus regarding the VR treatment:

> *"Then I've done two or three sessions with my patient and then it has come to its end already, and then I have lost my VR patient. I've done my best to find a patient, which succeeded, but then I have to find someone else. At that moment, [the focus] is a little lost [and it is a barrier to find someone new], as you need to make the treatment suitable and fitting at the start." (Part. 3)*

Eligible patients

Experienced barriers. Some therapists mentioned they still have trouble with determining which patients and patients groups they deem eligible for the VR treatment:

"I'm still searching, when will [a patient] receive VR and not drama therapy or cognitive behavioral therapy or group therapy, but VR?" (Part. 1)

This impedes them in starting the treatment, especially according to the therapists from Transfore.

Potential solutions. Therapists who did not experience this barrier, mentioned the protocols were helpful to determine which patient was eligible, as these stated clearly which disorders could be treated with VR. As Transfore therapists use those less, Participant 3 mentioned the help of her colleagues could be useful. When they are discussing treatments for new patients, colleagues could suggest VR treatment as well.

Traveling to location

Experienced barriers. Therapists mentioned that the VR sets are only present at two locations, so some patients would need to travel there to receive VR treatment. They said that most patients do not have the time, money or resources to travel to another location.

Potential solutions. The solutions mentioned for this are to have more sets available at more locations and have more therapists at the same locations schooled first. Participant 3 thinks there will be a higher chance for success if that is the case, partially due to eliminating the travel barrier for patients who are always treated at those locations.

Theme 6: Process

This theme refers to everything said about the future of the VR implementation process. The code can be found in Table 7.

Table 7

Overview and definitions of the codes related to Theme 6: Process

Codes	Definition of the code	Total.[a]	Ther. (T)[b]	Ther. (D)[c]	Proj.[d]
New therapists	Factors the participants specifically mentioned concerning new therapists to learn and use the VR set	7 (7)	3 (3)	3 (3)	1 (1)

Note. See the note from Table 2.

New therapists

Experienced barriers. This code refers to the factors which the participants specifically mentioned concerning new therapists who will learn and use the VR set in the next phase of the implementation process. The therapists mentioned the importance of keeping new therapists motivated and involved with the VR treatment and its enrolment into the organization. They see lacking knowledge about the VR treatment as a great barrier, as they mentioned having untrained colleagues who do not realize the

magnitude of learning the VR treatment. Participant 4 could see it happening that new therapists could think of this all as a small seminar:

> *"There needs to be some sort of devotion [of the new therapists], they need to actually get to work with [the VR set]. When [other project participants] were all enthusiastic about the amount of enthusiastic [colleagues] I thought that there is a risk that people will follow the seminar and think 'well, that was fun' and move on. Or 'oh, I needed to do something with VR' and that you'll lose contact with them. They don't do that on purpose, but that's how things go here." (Part. 4)*

Other participants found that enthusiastic colleagues still did not join as they felt they could not take on more tasks at that moment, because their workload was too big. Also, participants mentioned colleagues who would like to join, but only work two days of the week or are only providing online treatments. They had their doubts if these colleagues could start working with VR, due to their limitations on time or possibilities.

Potential solutions. Solutions mentioned were clear provision of information to new therapists, in which all aspects of learning and using the VR treatment are described. Five therapists mentioned that they had promoted or would promote VR treatment in their teams. Also, therapists mentioned a folder with information for colleagues is being made, which could provide information efficiently. According to the participants, both therapists and project leaders, these solutions need to include what is expected of the new therapists as well as the conditions in place to support them. Expectations are for example the time needed to invest, and for support examples are the intervision meetings and contact information of the current therapists. To keep therapists invested in the future, the project leaders mentioned also that setting small goals for the next meeting or month has been very helpful for the therapists.

Verification and Complementation of the Implementation Plan

The initial table of influencing factors and implementation activities in the implementation plan made by the project leaders contains the five topics *Therapists*, *Patients*, *Technology*, *Organization* and *External Factors*. To keep this section comprehensible, each of the identified codes will be linked to those topics and their factors and activities (Table 8). The full table and the adjustments can be found in Appendix D.

Table 8

The identified codes and their link to the tables of the topics and activities of the initial implementation plan (Appendix D)

Codes	Barriers mentioned in the code	Solutions mentioned in the code	Topic implementation plan[a]	Activities[b]
Complexity *Hardware* *Software*	Lots of different components Lots of different settings Trouble focusing on both software and patient*	VR room available* Calling service desk developer Practicing with VR set More focus on software during training* Executing treatment with two therapists*	**Technology** *Ease of use* **Therapists** *Knowledge and skills*	Useful service desk Practicing
Cost	Costs of the VR sets	Using vision DG Connected Showing relevance of VR to stakeholders Make stakeholders acquainted with VR	**External factors** *Costs*	Business case
Developer	N/A	Keep training, shift focus to software*	**Therapists** *Knowledge and skills*	N/A
Other mental health organizations	N/A	Using protocols from other organizations	**Externals factors** *Other organizations*	Stimulate exchange of knowledge, like protocols or tips
Insurance companies	Not all insurance companies cover VR treatment	N/A	**External factors** *Demands of insurance companies* *Other organizations*	N/A
COVID-19	1.5-meter measure* Feeling unsafe* Working from home*	N/A	N/A	N/A
Integration in protocols	Not working with a protocol*	Specific training* Protocols entailing scenarios	**Therapists** *Integration of technology in routines*	Compose new protocols or manuals

Codes	Barriers mentioned in the code	Solutions mentioned in the code	Topic implementation plan[a]	Activities[b]
Time management *Production* *Priority*	Non-patient related VR work is not production* Waitlists patients* Patient crises*	Set number of hours to work on VR Pinned hours in calendars* Reducing other non-patient hours* Setting small goals for next meetings	**Therapists** *Investment of time and energy*	Lowering production pressure (structural) Setting goals and evaluate them
Location VR sets	Getting patients to different locations*	Transporting the VR sets* Buying more VR sets*	**Organization** *Necessary conditions for usage*	N/A
Storing the VR sets	No permanent space or cabinet for storage*	Buying more VR sets* Reach facility services to get a permanent room Reach facility services to get a cabinet*	**Organization** *Necessary conditions for usage*	Assigned room for the VR set in Deventer and Almelo
Communication Project Leaders	First main goals were too high and scared therapists*	Adapt messages in first meeting* Make a VR therapist head of the project*	**Organization** *Substantive support of the therapists* *Necessary conditions for usage*	N/A
Organizational structure *Departments* *Colleagues*	Hesitation of departments to cooperate for the necessary conditions* Incomprehension of untrained colleagues*	Promoting VR inside the organization, aimed both at departments and colleagues* Promoting VR in team meetings Information folders for colleagues* Usage of higher management*	**Organization** *Introduction of technology to therapists* **Therapists** *Topic of conversation among colleagues*	Presentations for the teams by participants pilot phase
Self-efficacy	Therapists do not feel fully capable of using VR	Start treating patients quickly after training* Executing treatment with two therapists* Sharing during intervisions: 'it does not need to be perfect from the start'	**Therapists** *Introduction to and support of the patients* *Knowledge and skills*	Intervision meetings
Beliefs and attitudes	Therapists doubt the effectiveness of VR	Accurate and sufficient information by means of an online information folder, intervision meetings and contact with the project leaders	**Therapists** *Attitude towards the technology*	Database with scientific literature at one place

Codes	Barriers mentioned in the code	Solutions mentioned in the code	Topic implementation plan[a]	Activities[b]
Adaptability	Therapists do not have the perseverance or flexibility to learn working with VR*	Sharing the need for perseverance beforehand*	**Therapists** *Investment of time and energy*	N/A
Reaction of patients	N/A	Positive reactions of patients are beneficial for therapists' motivation*	**Patients** *Experienced advantages*	N/A
Eligible patients	Therapists do not know which patients to treat with VR*	VR Protocols* More trained colleagues in same team*	N/A	N/A
Traveling to location	Limited time and resources of patients to travel to different locations*	More available sets* More VR therapists from the same team*	**Patients** *Psychosocial situation*	N/A
New therapists	New therapists do not have knowledge about VR and the magnitude of learning it* Workload is too big Do not have enough time in the week	Clear information provision, including expectations and conditions in place*	N/A	N/A

Note. [a]Topics mentioned in the implementation plan in bold and subtopics in italics. [b]Verified activities mentioned only. *Not mentioned in the implementation plan.

Based on the findings in Table 8, a list of solutions could be added to the original implementation plan. For *Therapists*, the solutions are a longer and software-oriented training, a set number of hours to work on VR, reducing non-patient hours, two therapists per VR treatment, promoting VR among colleagues (e.g., folders), start treating patients soon after the training and share information with new therapists (e.g., time and energy it takes to learn VR). For *Patients*, the solutions are more available VR sets and more VR therapists in the same team. For *Technology*, the solutions are an available VR room and a longer and software-oriented training. For *Organization*, the solutions are the usage of the influence of the higher management, the adaption of initial communication and specific rooms for the VR set. For *External Factors,* the solutions added is to make stakeholders acquainted with VR. For *Planning*, the sixth theme of this study, no links with the implementation plan were found.

Discussion

Interpretation of Findings

This study aimed to identify barriers and accompanying solutions for the implementation of interactive Virtual Reality into a mental health organization, as experienced by therapists. The Consolidated Framework for Implementation Research was the supporting model for this study. The barriers and solutions were divided over six general themes: the five domains of the CFIR and another identified theme, Characteristics of Individuals – Patients. The mentioned barriers and solutions range from being experienced by one participant to all participants. Barriers that were found by all participants were for example the trouble therapists experienced with managing their time while learning VR, the difficulty of the software and the fact that not everyone has easy access to a VR set. Accompanying solutions and activities were for example a set number of hours to work on VR, more specific training and letting the VR sets be transported through internal facilities. The fact that all participants from different settings and different backgrounds mentioned these barriers could mean that these barriers are more likely to be experienced by new therapists as well. Furthermore, several barriers were related to different groups, such as different suborganizations. So, it should be noted that some of the identified barriers, as well as solutions, should be evaluated to fit the setting in which they occur and the therapists who experience them. The barriers mentioned only by the project leaders are also important, even though those are not experienced directly by the therapists and thus not mentioned by them. Most of these were either barriers at the start of the pilot phase or were linked to the conditions for which the project leaders were responsible. The therapists did not directly encounter these barriers, so it is logical that they did not mention them. Even though the barriers and solutions reported are originating from different participants or directions, it is important to keep all of them in mind. Every participant was important in the pilot phase, and therefore even barriers mentioned by one of them could influence the implementation process.

The third research question aimed to verify the implementation plan made for the implementation of VR in the Dimence Groep, and to add solutions and activities if found. Several of the topics mentioned in this plan could be verified based on the results of this study, such as the high workload of the therapists and the complexity of the technology. Several solutions and activities could be added as well, such as treating patients quickly after the training and trying to get more VR therapists in the same team. Another finding was that some solutions could be related to multiple barriers. This was true for newly added solutions as well as for some solutions which were already present in the implementation plan. For example, intervision meetings are mentioned in the plan to be a solution to the topics *therapists*, *introduction to and support of the patients*, but are found to be also a solution to the topic *attitude towards the technology*.

Barriers and Solutions in Literature

The identified barriers are mostly the same barriers identified in other studies, summarized in a systematic review of Ross et al. (2016). This study searched for articles which reported on factors that influence the implementation of eHealth in health care settings. In this study, the 44 researched articles show data linked to almost all the constructs of the CFIR. This gives ground to most barriers identified in this study, as multiple other studies in the review reported comparable results, such as complexity and the structural characteristics of the organization. Ross et al. (2016) also gave several recommendations, which can be linked to several of the identifies solutions. Examples are the inclusion of stakeholders is important, sufficient financial support is needed, training and education are key

success factors and complexity, cost and compatibility with existing work practices need to be taken into account. Several recommendations were not found in this study due to the focus on VR treatment, such as the need for ongoing monitoring, and the addressing of privacy and security of the technology, which are related to different technologies. When comparing this study to the findings in the systematic review of Schreiweis et al. (2019), which also focuses on influencing factors for the implementation of eHealth, only 5 of the 10 barriers found in this study match their top 10 identified barriers, namely *lack of necessary devices, problems with financing, accessibility, missing fit into organizational structures* and *added workload*. The factors not found by this study are *limited exposure/knowledge of eHealth, cognition, security, motivation* and *confidentiality*. These factors mostly relate to different users in different settings, such as patients at home, and other technologies, such as web-based modules, which could explain the absence of these factors in this study. The difference between the two reviews are that the review of Ross et al. (2016) used the CFIR in their analysis, and therefore considered the views of health care professionals in their review, which explains the higher rate of similarity between this study and theirs compared to this study and the review of Schreiweis et al. (2019). Ross et al. (2016) also did a more extensive search in different databases, which is also acknowledged by Schreiweis et al. (2019), which could also explain why the study by Ross et al. (2016) had more similarities with this study. Both the differences and similarities between this and other studies show that all implementation processes share basic principles. However, depending on the organization, the needs of different kinds of stakeholders and the nature of the technology, several adjustments need to be made, making each implementation process different and unique, which adds to the complexity of implementation.

CFIR in VR Implementation

The identified barriers could all be traced back to the constructs of the CFIR, except for the barrier related to the COVID-19 pandemic. Several other constructs of the CFIR were not mentioned during this study. There could be different reasons for the absence of several constructs. For example, the construct *Cosmopolitanism* of the domain *Outer Setting* could be a topic that is more related to other stakeholders and less for the users, as the users could be less interested in the position of their organization in relation to other mental health organizations. This could be true for several other constructs as well. Another example is the construct *Individual Identification with Organization* of the domain *Inner Setting*, which could be something the therapists do not think about or see as relevant for the implementation process. This could also be due to the fact that these topics were not discussed during the interviews. Therapists could have focused on barriers more directly related to them or the time limit of the interview prevented these topics from rising. Lastly, therapists could have only experienced facilitators related to some constructs, or simply had no experience regarding those constructs at all, and therefore did not mention them. Another observation during this study was the difficulty to include codes for the domain *Process*, which refers to all steps taken during implementation. During the analysis, most barriers and solutions in the other themes entailed several points regarding the implementation process in itself, so no exclusive barriers were found linked to the theme *Process*. Therefore, this theme seems to be less important in this study. This could be due to the fact that the therapists linked process related factors to other factors and did not acknowledge the process in itself as a factor. The therapists did not actively participate in the implementation steps such as planning, which could explain why they did not mention this domain specifically.

This study also shows the complexity of VR implementation. Most of the barriers and solutions found in this study are interrelated. For example, the fact that it is hard to organize the necessary

conditions with the help of certain departments, there are little permanent locations for the VR sets, which in itself causes barriers regarding the time management of the therapists. From a different perspective, one solution could solve multiple barriers, or one barrier needs multiple solutions. This shows that even though the CFIR is an acclaimed implementation model and is used in various implementation strategies (Damschroder et al., 2009; Hadjistavropoulos et al., 2017; Ross et al., 2016; van Oers et al., 2020; Varsi et al., 2015), the implementation of VR is still a complicated and confusing process (Best et al., 2020). The implementation of eHealth in itself is complex due to the complexity of the health care systems (Pieterse et al., 2018) and the many stakeholders involved (Nilsen et al., 2020). Implementation models are necessary when implementing VR, and the CFIR is a good model to use, but it is needed to look beyond the models as well. Implementation models and frameworks, simplifications of reality, are still to be researched thoroughly to see if they can cover all that the rapidly evolving field of eHealth entails (Pieterse et al., 2018). So constant evaluation among stakeholders is key, and topics outside the scope of an implementation model found by this evaluation can be influential as well and need to be addressed that way.

Relevance of Patients' Perspectives

This study found barriers experienced by the therapists related to patients who are treated with VR. This suggests that the influence of these patients on the implementation process is important as well. Several examples to support this finding are found in the literature. The importance of patient perspectives is in line with the holistic approach (Kip & van Gemert-Pijnen, 2018; van Gemert-Pijnen et al., 2011), which states that all users need to be included in the implementation process to achieve implementation. The importance of the patient's perspective is also shown in the works of Koch (2012), Triberti et al. (2018) and McGinn et al. (2011). Koch (2012) advocated in their work about the shifted focus in health care towards patient-centered care, which promotes shared decision making about care. Triberti et al. (2018) clearly states that user engagement is not the same as patient engagement and both should be seen as separate groups. In the systematic review of McGinn et al. (2011) it was found that barriers and facilitators could range widely between different user perspectives, including patients, and they think it necessary to consider this range when identifying barriers and facilitators when implementing eHealth. This means that patients need to be included in the VR implementation process as well. Linking the fact that patients' perspectives are influential when implementing eHealth to the CFIR, it seems this framework falls short concerning different users. In this study, the domain *Characteristics of Individuals* is split into the categories *Therapists* and *Patients*, creating six themes instead of the five derived from the CFIR. The option to create a new theme for this study stems from the fact that patients had a significantly high influence on the therapists' view of the VR treatment, and this did not seem to fit in the original five themes. In the CFIR, patients can only be found in the domain *Outer Setting,* in the construct *Patient needs and resources*. So, patients seem to get little attention in the CFIR, as is also shown in the conclusion of the systematic review of Ross et al. (2016) and the study of Adjei & Nilsson (2021). It can be stated that the CFIR lacks to focus on different but important user perspectives, which should be kept in mind while using the CFIR during an implementation process. To help implementation researchers and project leaders focus more on patient perspectives, the findings of Cochrane et al. (2007) could be added to an implementation plan based on the CFIR. This is because 'patient barriers' is one of their main identified categories, according to the narrative review of Waltz et al. (2019).

Tailoring of the Implementation Process

Not all barriers were experienced by every therapist. Next to this, not every proposed solution is suitable for every therapist. This shows that the needs and wishes of therapists can differ between one another. An example is the fact that Transfore therapists work less protocolized than their colleagues from Dimence, so they will need a different approach to applying VR into their treatment routines. Another example is the therapists who do not work in the city where the VR set is stationed. For them, solutions need to be found so they can work with the VR set as well. It is also found that some therapists have more trouble with learning to use the VR set than others. For them, extra sessions with more explanation or training could be useful, whereas others will not need this. So, this suggests that one-size-fits-all solutions may not always be successful and more specific solutions need to be conducted, specified on subgroups of therapists or individuals, to keep the users engaged. Baker et al., (2010) conclude that tailored solutions to implementation barriers are more likely to improve implementation. Powell et al. (2017) underline this in their study, providing four methods for tailoring.

Strength and Limitations

In this study, the complexity and versality of VR implementation is shown. The main strength of this study is the focus on the view of the therapists on the implementation process and using in-depth semi-structured interviews to identify these views. The therapists play a crucial role in executing the implementation process and can make the implementation either a success or a failure. From eHealth design to implementation, the whole process needs to be in line with the views of the intended users (van Gemert-Pijnen et al., 2011). No other case studies focusing on the viewpoints of therapists on the implementation of VR were found, which makes this study a new addition to the field of VR. Also, this study includes the views of the facilitators, the project leaders, to substantiate and explain the context of the implementation process. Furthermore, the interviews and part of the analysis were guided by the CFIR, one of the more commonly used and broad implementation frameworks (Pieterse et al., 2018; Waltz et al., 2019), but were not limited to it. This makes that this study can be an example and a guideline for further research regarding implementation processes, as the CFIR will probably be used often when eHealth applications such as VR are being implemented. Lastly, by using the semi-structured interview technique and the deductive method, this study allowed new factors to emerge.

This study has its limitations as well. First and foremost, the qualitative data analysis has been conducted by one researcher. Even though results were discussed with the supervisor, one view could be too narrow and thus influence the rigor (Noble & Smith, 2015) and reliability due to the lack of interrater reliability. Furthermore, the subject of implementation and the CFIR are argued to be too broad to fully comprehend in one qualitative study (Varsi et al., 2015). This is seen in the fact that due to time limitations not every participant covered the same topics in their interview, and that some domains may have been underexposed because of that, as is the case in other studies as well (van Oers et al., 2020; Varsi et al., 2015). Concerning the participants, a self-selection may be present. The included therapists all signed up for this project due to enthusiasm, curiosity and interest in the VR treatment. Patients and other stakeholders, such as the employers and team leaders, could have been interviewed as well. If these groups could have been included, a broader and more including view could have conducted. Though, for a first step in the research of VR implementation, including only the therapists who signed up for the project and the project leaders is sufficient to get a general view.

Implications for Further Research

There is a lot of potential for further research following this study. It is shown that implementation science is a complex field, with many intertwining elements. The views of different stakeholders in other positions, such as managers, employers and employees of other departments, are a logical follow-up, as they are part of the implementation process as well. To make an implementation process most successful, every stakeholder needs to be cooperative and should be heard. Firsthand experience from patients could also be an interesting addition, as their perspective should be included as well. A research with a mixed-methods design could be conducted with the first couple of patients treated with VR. An example can be a need-based assessment of the patients prior to the VR treatment and interviewing them afterwards. This could for example give a better view for which patients the VR treatment is eligible. Next to this, a study similar to this one could be conducted with the new groups of VR therapists inside the organization as well. The results of both studies could be compared to see the workings of executed solutions and to see if the barriers still apply to this second group. The therapists who did not or would not join the project are also a group on which can be focused. The insights and reasons not to participate could potentially find new barriers. Lastly, instead of a case study, a longitudinal or evaluating study could contribute to explaining causes and finding effects of solution and activities. With a longitudinal study, the effects of implemented solutions can be measured more objectively. At certain times during an implementation process, participants can be asked after the barriers they experience and possible solutions, and how these solutions have worked out. This way, the effects of the solutions can be measured and altered if necessary. Furthermore, new experienced barriers can be identified more quickly and solutions to these barriers can be executed, possibly creating a more inclusive overview of barriers and solutions. An evaluating study can provide an overview of the complete implementation process and can find the most successful solutions.

Conclusion

This study identified several identified barriers and solutions for the implementation of interactive Virtual Reality, experienced by therapists and project leaders in a mental health organization, with the Consolidated Framework for Implementation Research as supporting framework. Examples of identified barriers are the complexity of the VR software and the time available to therapists. Several solutions found are receiving more training and to get specific hours to work on VR. These barriers and solutions were used to verify and complement the original plan for the implementation of VR in the Dimence Groep. VR implementation is a complex process, so a solid model is needed to guide this process. The CFIR is shown to be a good framework for this. Still, it should be kept in mind to involve both therapists and patients from the start of the implementation. The high number of additions to the original implementation plan shows the influence of therapists on the implementation process and advocates the fact that therapists should be consulted when creating an implementation plan. Next to this, the statements made about patients and their influence on the therapists advocates patients' involvement as well, which is underexposed in the CFIR. Furthermore, the implementation process needs to be adaptable to different needs of subgroups, such as therapists from suborganizations, to support full adoption. This study contributes to the complex field of eHealth implementation as it gives a first insight in experienced barriers and solutions experienced during VR implementation and as it has made several important notions for assembling and conducting a VR implementation process with the CFIR as guide. Further research should focus on the involvement of all stakeholders and their influence on the implementation of VR inside mental health care.

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Appendices

Appendix A – Interview Scheme Therapists

Voorstellen (waar nodig)

Informatie en doel

Voor mijn afstuderen van de studie Gezondheidspsychologie aan de Universiteit Twente doe ik onderzoek naar de implementatie van Interactieve Virtual Reality bij de Dimence Groep. Dit interview heeft als doel om op basis van uw ervaringen tijdens de het project tot nu toe informatie op te doen, zodat straks de volledige implementatie zo goed mogelijk uit kunnen rollen. Uw ideeën over de verdere voortgang zijn hierin dus erg belangrijk, om zo de implementatie de komende tijd het beste aan te pakken en nieuw getrainde behandelaren zo goed mogelijk te ondersteunen. Dus ik hoor graag over uw ervaringen met het gebruik van de VR behandeling.

Van tevoren

a. Uw antwoorden zullen anoniem behandeld worden en niet individueel teruggekoppeld worden naar de projectleiders. De conclusies uit dit onderzoek zullen alleen samengebonden gepresenteerd worden. Graag wil ik u erop wijzen dat u op elk moment zich kan onttrekken van dit onderzoek, wat zal leiden tot een verwijdering van de gegevens en gegeven antwoorden.
b. Heeft u het Informed Consent formulier ondertekend? (Digitaal of fysiek)
c. Is het doel van dit interview duidelijk bij u?
d. Is het goed als dit gesprek opgenomen wordt?
e. Heb ik bij deze, ook mondeling, toestemming om
    i. Uw antwoorden te gebruiken bij mijn onderzoek?
    ii. U na dit interview mogelijk nog eens te benaderen voor een eventuele verheldering of wat extra vragen?

Opening

1. Zou u om te beginnen uzelf en uw functie binnen de Dimence Groep willen beschrijven?
2. Welke ervaringen met het behandelen met VR heb je tot nu toe opgedaan? Hoe gaat het tot nu toe?

Start van het project

3. Als je terugdenkt aan het begin, toen je net kennis maakte met de VR behandeling, welke informatie die je toen gekregen hebt zou relevant zijn als straks nieuwe behandelaren gaan starten?
4. Hoe heb je de eerste meetings, de Kick-offs, ervaren?
    - Wat is hier aan je verteld?
    - In welke vorm zouden Kick-offs voor nieuwe behandelaren het beste zijn?
5. Heb je het gevoel op de volgende punten informatie te hebben gemist:
    - Betrokkenheid management
    - Kosten en verzekering
    - Activiteiten die op de achtergrond gebeuren

- Gebruik bij andere organisaties
- Uitgebreidere training

6. Zijn er nog afsluitende opmerkingen of punten als het gaat om de **start van het project**?

Training en daarna

Activiteiten

7. Hoe heb je de training door CleVR ervaren?
    - Wat ging goed en wat zijn verbeterpunten?
    - Wat zou de volgende keer anders moeten of kunnen gaan?
8. In hoeverre was het oefenen met de set, na de training en met collega's, belangrijk voor je?
    - Hoe zie je het oefenen met de set voor je bij de opschaling?

Betrokkenheid en communicatie

9. Voel je je betrokken bij het gebruik van VR als behandeling binnen de Dimence Groep? Op welke manier?
    - Hoe zouden we nieuwe behandelaren kunnen blijven betrekken?
10. Hoe zie je de rol van intervisies voor je?
    - Wat is hierin belangrijk?
    - Zouden intervisies nodig zijn als er wordt opgeschaald? Zo ja, in welke vorm?
11. Hoe vind je dat de organisatie vanuit de Dimence Groep loopt?
    - Wat gaat er goed?
    - Zijn hier verbeterpunten te vinden?
        - *Communicatie*
        - *Feedback*
        - *Ondersteuning*

Toekomst

12. Denk je dat alle behandelaren VR kunnen gaan gebruiken? Waarom wel/niet?
    - Waarom wel/niet?
13. Bij welke cliëntengroep zou VR toepasbaar zijn?
    - Hoeveel procent van jouw cliëntengroep zou VR bij kunnen helpen?
    - **Welke ondersteuning zou nodig zijn om zoveel mogelijk cliënten te helpen met VR?**
14. In de komende paar jaar, hoe zie jij het gebruik van VR voor je?
    - Hoe vaak zou je VR gaan gebruiken?
    - **Wat zou hiervoor nodig zijn om dit te bereiken?**
15. Hoe zie je jouw rol het komende jaar voor je?
    - *Blijf je betrokken*
    - *Buddy?*
16. Heeft u nog afsluitende opmerkingen?

Appendix B – Interview Scheme Project Leaders

Informatie en doel

Voor mijn afstuderen van de studie Gezondheidspsychologie aan de Universiteit Twente doe ik onderzoek naar de implementatie van Interactieve Virtual Reality bij de Dimence Groep. Dit interview heeft als doel om op basis van uw ervaringen tijdens de het project tot nu toe informatie op te doen, zodat straks de volledige implementatie zo goed mogelijk uit kunnen rollen. Uw ideeën over de verdere voortgang zijn hierin dus erg belangrijk, om zo de implementatie de komende tijd het beste aan te pakken en nieuw getrainde behandelaren zo goed mogelijk te ondersteunen. Dus ik hoor graag over uw ervaringen met het gebruik van de VR behandeling.

Van tevoren

f. Uw antwoorden zullen anoniem behandeld worden, voor zover dat voor jullie rol mogelijk is. De conclusies uit dit onderzoek zullen alleen samengebonden gepresenteerd worden. Graag wil ik u erop wijzen dat u op elk moment zich kan onttrekken van dit onderzoek, wat zal leiden tot een verwijdering van de gegevens en gegeven antwoorden.
g. Heeft u het Informed Consent formulier ondertekend? (Digitaal of fysiek)
h. Is het doel van dit interview duidelijk bij u?
i. Is het goed als dit gesprek opgenomen wordt?
j. Heb ik bij deze, ook mondeling, toestemming om
    i. Uw antwoorden te gebruiken bij mijn onderzoek?
    ii. U na dit interview mogelijk nog eens te benaderen voor een eventuele verheldering of wat extra vragen?

Opening

1. Kun je kort vertellen wat de aanleiding is geweest voor het opzetten van het VR project?
2. Wie waren er allemaal betrokken bij het opstarten van het project en wat was hun rol?
3. Hoe keken jullie zelf tegen interactieve VR aan?

Start van het project

4. Hoe zijn jullie het project opgestart, welk fundament hebben jullie hiervoor gelegd?
    a. Uitgaande van de cultuur binnen de organisatie?
    b. Kun je in eigen woorden aangeven waar je rekening mee hebt gehouden?
        i. Waar heb je extra energie in gestoken?
5. Hoe hebben jullie de beginfase ervaren (tot de training)?

Training en verder

6. Hoe was de training in jullie ervaring?
7. Welke acties hebben jullie zoal ondernomen na de training?

Organisatorisch

8. Welke tegenslagen of problemen zijn jullie zoal tegengekomen tijdens het project?
    a. Mensen die niet aanhaakten, wat waren hun redenen? (nuttig om hen nog te spreken?)
    b. Hoe zouden praktische problemen opgelost kunnen worden?
9. Hoe gaat het nu met de nieuwe groep behandelaren?
    a. Hoe zijn zij gemotiveerd aan te haken?
10. Wat zijn verdere plannen voor het project?
11. Welke punten hebben jullie meegenomen voor het verdere implementatieproces?
12. Hoe ziet jullie ideale situatie over twee jaar eruit?

Appendix C – Informed Consent Form

Informatieblad voor onderzoek 'Identifying barriers and activities for implementing VR-CBT into a mental health organisation'

Doel van het onderzoek
Dit onderzoek wordt geleid door Dennis Hans, BMS Universiteit Twente.
Het doel van dit onderzoek is om op basis van uw ervaringen tijdens de eerste fase van het implementatieproces van Virtual Reality in de Dimence Groep informatie op te doen voor de vervolgfase van het implementatieproces. Door middel van interviews gaan we het hebben over de afgelopen maanden, toen u gewerkt hebt met het VR programma. Ik ben vooral geïnteresseerd in uw gedachten het verdere uitrollen van het implementatieproces.

Hoe gaan we te werk?
U neemt deel aan een onderzoek waarbij we informatie zullen vergaren door u te interviewen en uw antwoorden te noteren en op te nemen via een audio-opname/video- opname. Er zal ook een transcript worden uitgewerkt van het interview.

Potentiële risico's en ongemakken
Er zijn geen fysieke, juridische of economische risico's verbonden aan uw deelname aan deze studie. U hoeft geen vragen te beantwoorden die u niet wilt beantwoorden. Uw deelname is vrijwillig en u kunt uw deelname op elk gewenst moment stoppen.

Vergoeding
U ontvangt voor deelname aan dit onderzoek geen vergoeding.

Vertrouwelijkheid van gegevens
Wij doen er alles aan uw privacy zo goed mogelijk te beschermen. Er wordt op geen enkele wijze vertrouwelijke informatie of persoonsgegevens van of over u naar buiten gebracht, waardoor iemand u zal kunnen herkennen. Voordat onze onderzoeksgegevens naar buiten gebracht worden, worden uw gegevens zoveel mogelijk geanonimiseerd, tenzij u in ons toestemmingsformulier expliciet toestemming heeft gegeven voor het vermelden van uw naam, bijvoorbeeld bij een quote.

In een publicatie zullen anonieme gegevens of pseudoniemen worden gebruikt. De audio-opnamen, formulieren en andere documenten die in het kader van deze studie worden gemaakt of verzameld, worden opgeslagen op een beveiligde locatie bij de Universiteit Twente en op de beveiligde (versleutelde) gegevensdragers van de onderzoekers.
De onderzoeksgegevens worden bewaard voor een periode van 10 jaar. Uiterlijk na het verstrijken van deze termijn zullen de gegevens worden verwijderd of worden geanonimiseerd zodat ze niet meer te herleiden zijn tot een persoon.
De onderzoeksgegevens worden indien nodig (bijvoorbeeld voor een controle op wetenschappelijke integriteit) en alleen in anonieme vorm ter beschikking gesteld aan personen buiten de onderzoeksgroep.

Tot slot is dit onderzoek beoordeeld en goedgekeurd door de ethische commissie van de faculteit BMS.

Vrijwilligheid
Deelname aan dit onderzoek is geheel vrijwillig. U kunt als deelnemer uw medewerking aan het onderzoek te

allen tijde stoppen, of weigeren dat uw gegevens voor het onderzoek mogen worden gebruikt, zonder opgaaf van redenen. Het stopzetten van deelname heeft geen nadelige gevolgen voor.
Als u tijdens het onderzoek besluit om uw medewerking te staken, zullen de gegevens die u reeds hebt verstrekt tot het moment van intrekking van de toestemming in het onderzoek gebruikt worden.

Wilt u stoppen met het onderzoek, of heeft u vragen en/of klachten? Neem dan contact op met de onderzoeksleider.

Mail: d.d.hans@student.utwente.nl / d.hans@transfore.nl
Telefoon: 06-40954335

Voor bezwaren met betrekking tot de opzet en of uitvoering van het onderzoek kunt u zich ook wenden tot de Secretaris van de Ethische Commissie van de faculteit Behavioural, Management and Social Sciences op de Universiteit Twente via ethicscommittee-bms@utwente.nl. Dit onderzoek wordt uitgevoerd vanuit de Universiteit Twente, faculteit Behavioural, Management and Social Sciences. Indien u specifieke vragen hebt over de omgang met persoonsgegevens kun u deze ook richten aan de Functionaris Gegevensbescherming van de UT door een mail te sturen naar dpo@utwente.nl.

Tot slot heeft u het recht een verzoek tot inzage, wijziging, verwijdering of aanpassing van uw gegevens te doen bij de Onderzoeksleider.

Door dit toestemmingsformulier te ondertekenen erken ik het volgende:

1. Ik ben voldoende geïnformeerd over het onderzoek door middel van een separaat informatieblad. Ik heb het informatieblad gelezen en heb daarna de mogelijkheid gehad vragen te kunnen stellen. Deze vragen zijn voldoende beantwoord.
2. Ik neem vrijwillig deel aan dit onderzoek. Er is geen expliciete of impliciete dwang voor mij om aan dit onderzoek deel te nemen. Het is mij duidelijk dat ik deelname aan het onder- zoek op elk moment, zonder opgaaf van reden, kan beëindigen. Ik hoef een vraag niet te beantwoorden als ik dat niet wil.

Naast het bovenstaande is het hieronder mogelijk voor verschillende onderdelen van het onderzoek specifiek toestemming te geven. U kunt er per onderdeel voor kiezen wel of geen toestemming te geven. Indien u voor alles toestemming wil geven, is dat mogelijk via de aanvinkbox onderaan de stellingen.

3. Ik geef toestemming om de gegevens die gedurende het onderzoek bij mij worden verzameld te verwerken zoals is opgenomen in het bijgevoegde informatieblad.	JA □	NEE □
4. Ik geef toestemming om tijdens het interview opnames (geluid / beeld) te maken en mijn antwoorden uit te werken in een transcript.	□	□
5. Ik geef toestemming om mijn antwoorden te gebruiken voor quotes in de onderzoekspublicaties.	□	□
Ik geef toestemming voor alles dat hierboven beschreven staat.	□	

Naam Deelnemer: Naam Onderzoeker:

Handtekening: Handtekening:

Datum: Datum:

Appendix D – Factors and Implementation Activities DG (Dutch)

The parts verified by this study are marked blue and the added solutions are green.

Behandelaren

Onderwerp	Problemen/aandachtspunten	Doel	*Activiteiten*
Investeren van tijd en moeite	Behandelaren kunnen geen (extra) tijd investeren in het leren werken met een technologie.	Behandelaren ervaren voldoende tijd om te leren werken met VR.	• *'Knoppencursus' CleVR* • *Vermindering productiedruk (dus extra tijd): meer tijd per behandeling* • *Extra tijd kunnen schrijven voor VR* • *'Zandbaktijd'* • *Tweewekelijkse intervisie*
	Behandelaren willen geen (extra) tijd investeren in het leren werken met een technologie.	Behandelaren zijn voldoende intrinsiek gemotiveerd om te leren werken met VR.	• *'Zandbaktijd'/spelen met VR* • *Onderling bespreken van (mogelijke) toegevoegde waarde in bijeenkomst(en)* • *Communicatie vanuit beweegleiders → pionieren, voorlopers, innoveren* • *Mogelijkheden bieden om nieuwe dingen te leren/ervaren (bijv. sprekers, congressen, excursies)* • *Onderwerp van gesprek in bijeenkomsten projectgroep*
	Behandelaren kunnen geen (extra) tijd investeren om te blijven werken met een technologie.	Behandelaren ervaren dat management voldoende tijd geeft om VR te blijven gebruiken.	• *Monitoren van geïnvesteerde tijd (voorbereiding, behandelsessie, verwerking)* • *Structurele vermindering van productiedruk (wellicht regelmatig evalueren, steeds minder 'extra' tijd?)* • *Communicatie vanuit management/teamleiding over uren* • *Eigen doelen opstellen voor deelname pilot → regelmatig evalueren* • *VR uren duidelijk in de agenda vastzetten* • *Andere niet aan patiënt gerelateerde uren beperken* • *Duidelijk maken bij recruitment wat er verwacht wordt*
	Behandelaren willen geen (extra) tijd investeren om te blijven werken met een technologie.	Behandelaren zijn voldoende intrinsiek gemotiveerd/ enthousiast om structureel te blijven werken met VR.	• *Behandelaren worden regelmatig 'beloond' voor hun inzet* • *Intervisie (met aandacht voor eigen motivatie)* • *Management en beweegleiders moedigen gebruik VR aan* • *Regelmatig evalueren/bespreken van voordelen* • *Eigen doelen opstellen voor deelname pilot → regelmatig evalueren*
	Behandelaren worden niet beloond/ervaren geen waardering voor alle tijd en moeite die ze erin stoppen.	Behandelaren voelen zich voldoende gewaardeerd door collega's en de organisatie voor de geïnvesteerde tijd en moeite.	• *Veel communicatie (intern en extern) over het project* • *Expliciete waardering door beweegleiders en opdrachtgevers* • *Aanmoedigen van reacties collega's/directie op berichten* • *Interesse vanuit management* • *Aanmoedigen om binnen eigen team iets te vertellen* • *Statistieken bijhouden over behandelsessies (op een leuke manier) en mijlpalen vieren tijdens intervisiebijeenkomsten*

Onderwerp	**Problemen/aandachtspunten**	**Doel**	***Activiteiten***
Introductie bij en ondersteuning van cliënten	Behandelaren introduceren een technologie niet bij alle cliënten, bijvoorbeeld omdat ze verwachten dat het toch niet gaat werken.	Behandelaren bespreken de optie om VR te gebruiken bij al hun cliënten.	• *Bespreken in intervisie* • *Formulier per cliënt bijhouden: waarom wel/niet?* • *Bespreekpunten aanleveren (bijv. losjes gebaseerd op Fit for EMH instrument)* • *Bespreken met deelnemende cliënten aan projectgroep: hoe introduceren? Welke vragen?* • *Flyer meegeven aan hele caseload?*
	Behandelaren steken weinig tijd en moeite in het motiveren van cliënten om technologie op lange termijn te blijven gebruiken	Behandelaren zetten verschillende technieken in om cliënten te blijven motiveren om deel te nemen.	• *Continu punt van aandacht in intervisie* • *Gaandeweg de pilot een document met tips & tricks opstellen* • *Tips van cliënten vragen* • *Tips van GGZ Delfland vragen (en evt. andere instellingen)* • *Vaardigheden en bijbehorende leerdoelen opstellen met projectgroep*
	Behandelaren durven een technologie bij cliënten nog niet te gebruiken omdat ze bang zijn dat het nèt allemaal niet lukt of dat ze als professional voor schut staan.	Behandelaren starten met het gebruik van VR ondanks een (lichte) mate van handelingsverlegenheid.	• *Oefenen met 'test-cliënten uit projectgroep* • *Intervisie met open sfeer (belang van 'fouten' bespreken)* • *Beschikbaarheid van goede technische back-up (CleVR)* • *Beschikbaarheid van inhoudelijke back-up (collega-maatje?)* • *Afspraken over 'verwachtings-management' bij cliënten (pilot)* • *Oefenen met echte cliënten* • *Twee therapeuten per behandeling*
Integratie van technologie in routines	Behandelaren denken niet automatisch aan de mogelijkheid om een technologie in te zetten in hun behandeling.	Behandelaren denken bij elk behandelcontact aan de optie om VR in te zetten.	• *Veel (wekelijkse? Vaker?) communicatie vanuit de beweegleiders* • *Fysieke reminder (flyer, poster) in hun kamer/op pc* • *Integratie in bestaande systemen/overleggen (MDO, EPD)* • *Vragen vanuit cliënten stimuleren → flyer meegeven?* • *Collega's uit hetzelfde team elkaar helpen herinneren*
	Behandelaren integreren een technologie niet in hun dagelijkse werkzaamheden; het blijft een 'extra' middel in plaats van een volwaardig deel van de behandeling.	Behandelaren hebben voldoende handvaten om VR te integreren in de behandeling.	• *In kaart brengen van bestaande protocollen (overzicht maken)* • *Bijstellen/aanscherpen bestaande protocollen* • *Opstellen nieuwe protocollen/ handleidingen door projectgroep* • *Intervisie: inbedding vast bespreekpunt?* • *Opstellen document met tips & tricks voor goede inbedding door projectgroep* • *Input GGZ Delfland en andere ervaringsdeskundigen verzamelen* • *Specifieke training op mogelijkheden, bijv. opzetten rollenspel*
Kennis en vaardigheden	Behandelaren hebben niet voldoende kennis en vaardigheden om de technologie goed in te zetten in de behandeling.	Behandelaren ervaren dat ze voldoende technische en inhoudelijke kennis en vaardigheden hebben om VR succesvol in te zetten bij (het	• *Vaardighedentraining van CleVR (en evaluatie daarvan door projectgroep)* • *Overzicht behoeften behandelaren m.b.t. training/informatie* • *Tips vragen aan GGZ Delfland* • *Distillatie van benodigde vaardigheden uit observaties van behandelingen en intervisie*

Onderwerp	Problemen/aandachtspunten	Doel	*Activiteiten*
		grootste deel van) hun caseload.	• *Opstellen leerdoelen* • *Ontwikkeling training/lesmateriaal op basis van leerdoelen* • *Uitdelen bestaande informatie van CleVR aan behandelaren tijdens eerste bijeenkomst* • *Alle informatie op één plek (DG Connected?)* • *'Zandbaktijd' om te leren werken met VR zonder cliënten* • • *Twee therapeuten per behandeling* • *CleVR bellen*
	Vaardighedentrainingen zijn te veel gericht op technische kennis, en niet voldoende op (inhoudelijke) vaardigheden om het goed in te bedden in behandelingen.	Er wordt een brede, laagdrempelige vaardighedentraining ontwikkeld met aandacht voor techniek en inhoud.	• *Opstellen breed scala aan leerdoelen en bijbehorende training/informatie* • *Samenwerking met Leren & Ontwikkeling* • *Vast topic bij maandelijkse projectgroep-bijeenkomsten* • *Kritische evaluatie training CleVR, zelf aanvullend materiaal ontwikkelen indien nodig* • *Specifieke training op mogelijkheden, bijv. opzetten rollenspel*
	De behandelaren hebben geen weet van de status/ontwikkelingen en kennis van collega's en andere organisaties rondom de technologie terwijl daar veel uit geleerd kan worden (kennisuitwisseling).	Behandelaren spreken regelmatig collega's die met een vergelijkbare caseload die ook met VR werken. EN Behandelaren zijn voldoende op de hoogte van de stand van zaken en ervaringen van andere instellingen.	• *Intervisie* • *'Excursie' naar GGZ Delfland en/of andere collega-instellingen* • *Mogelijkheden om naar congressen/bijeenkomsten te gaan* • *Organisatie kennisbijeenkomst VR binnen DG?*
	Behandelaren hebben weten niet goed wat ze moeten doen in bepaalde risicovolle situaties.	Behandelaren weten wat er moet gebeuren als er een inhoudelijke of technische risicovolle situatie ontstaat.	• *Projectgroep brengt mogelijke risicovolle situaties in kaart (inhoudelijk en technisch)* • *Bespreken met projectgroep, CleVR en andere instellingen wat te doen bij deze risico's* • *Duidelijk overzicht voor behandelaren met risico's en bijbehorende tips* • *Contactgegevens van Helpdesk CleVR* • *Vaststellen van 'inhoudelijke' contactpersoon?*
Houding ten aanzien van technologie	Behandelaren zijn niet enthousiast over de inzet van technologie in de behandeling.	Behandelaren zijn enthousiast over de inzet van VR in de behandeling.	• *'Zandbaktijd': behandelaren krijgen samen tijd om te spelen met VR* • *Aandacht voor de toegevoegde waarde tijdens projectgroepbijeenkomsten/kick-off* • *Structurele communicatie vanuit beweegleiders (bijv. nieuwe ontwikkelingen, nieuwsartikelen)* • *Behandelaren aanmoedigen om zichzelf als 'ambassadeur' te profileren in hun team*

Onderwerp	**Problemen/aandachtspunten**	**Doel**	***Activiteiten***
	Behandelaren weten nog niet of de technologie effectief is en zijn daarom huiverig om te gebruiken.	Behandelaren hebben voldoende kennis over de stand van zaken van wetenschappelijk onderzoek.	• *Voorlichting door beweegleiders over effectiviteit tijdens kick-off (en later)* • *Database met wetenschappelijke literatuur op één plaats* • *Onderzoek parallel aan implementatie laten lopen (met aandacht voor effectiviteit)*
Gespreksonderwerp tussen collega's	Technologie is geen 'informeel' gespreksonderwerp tussen collega's, buiten officiële (vergader)momenten.	Behandelaren bespreken VR regelmatig met collega's en wisselen ervaringen en/of informatie uit.	• *Bekendheid onder collega's door veel communicatie vanuit projectgroep (Intranet, blog, langs teams?)* • *Behandelaren aanmoedigen om ambassadeursrol aan te nemen (materiaal bieden om te laten zien aan collega's?)* • *Intervisie tussen deelnemers pilot* • *Duo-maatje* • • *Informatiefolder collega's*
	Behandelaren weten niet welke andere behandelaren met de technologie bezig zijn en zoeken elkaar niet op om kennis uit te wisselen.	Behandelaren hebben een duidelijk overzicht van collega's met wie ervaringen uitgewisseld kunnen worden/van wie ze kunnen leren.	• *Duo-maatje binnen pilot-groep?* • *Overzicht deelnemende behandelaren op intranet* • *Ambassadeurs aanwijzen en zichtbaar maken binnen de organisatie*
Ervaren voordelen/ toegevoegde waarde	Behandelaren hebben het idee dat een technologie geen voordelen heeft voor henzelf, de cliënt, of de behandeling.	Behandelaren hebben inzicht in de voordelen die VR kan hebben voor henzelf, de cliënt en hun behandeling.	• *Bespreken voordelen tijdens de kick-off* • *Delen artikelen met values/voordelen (online) (putten uit VooRuit met VR project)* • *Regelmatig bespreken welke voordelen er worden ervaren* • *Cliëntperspectief meenemen: welke voordelen ervaren zij?* • *Delen van ervaren voordelen met de organisatie (communicatie)*
	Behandelaren hebben niet duidelijk op welke behoefte de technologie een antwoord is. Waarom doen we dit ook alweer?	Behandelaren zijn op de hoogte van de doelen van de inzet van VR.	• *Bespreken/vaststellen van meerdere typen doel(en) van VR tijdens eerste paar bijeenkomsten projectgroep (cliënt, behandelaar, organisatie)* • *Doelen worden regelmatig besproken tijdens bijeenkomsten projectgroep.* • *Doelen staan online op intranet.*
	Behandelaren hebben het grotere plaatje niet duidelijk (bijvoorbeeld dat de technologie onderdeel uitmaakt van een groter plan) en ook de inhoud van het grotere plaatje niet scherp.	Behandelaren zijn op de hoogte van de plaats van VR binnen DG Connected.	• *Visie van DG Connected wordt besproken* • *Visie DG Connected en rol van VR staan kort uitgelegd op de Intranet pagina.* • *Duidelijke uitleg over financiën (?)*

Cliënten

Onderwerp	Problemen/aandachtspunten	Doel	*Activiteiten pilot - concept*
Motivatie	Cliënten staan bij introductie van de technologie niet open voor het gebruik ervan en willen niet starten met gebruik.	Alle cliënten staan open voor het in ieder geval uitproberen van VR in hun behandeling.	• *Goede, enthousiasmerende introductie door behandelaar* • *Extra materiaal beschikbaar (online en meegegeven door behandelaar)* • *Duidelijk bespreken van voordelen tijdens de introductie* • *Filmpjes/ervaringsverhalen van andere cliënten online* • *Eerst even 'uitproberen': niet gelijk 100% starten, maar VR laten zien* • *Communicatie: posters in wachtkamers/behandelkamers* • *Drempelverlagende communicatie: altijd stoppen als ze niet willen, etc.*
	Cliënten zijn gedurende het gebruik van een technologie niet gemotiveerd om er mee door te gaan en haken af.	Cliënten blijven gemotiveerd gedurende het gebruik van VR in hun behandeling en haken niet voortijdig af.	• *Vaardighedentraining behandelaar met aandacht voor motivatie cliënten* • *Onderwerp van intervisie (in kaart brengen vaardigheden)* • *Behandelaar bespreekt voordelen regelmatig met cliënt* • *Cliënt evt. vragen als 'ambassadeur': vertellen over ervaringen? Speciale rol* • *Cliënt evt. belonen?* • *Behandelaar monitort dit: observatie + vragen.*
	De cliënt heeft een afwachtende houding en toont weinig regie/initiatief om zelf aan de slag te gaan (de psycholoog lost mijn problemen wel op, terwijl hij/zij zelf aan de slag moet gaan).	Cliënten hebben een actieve werkhouding en een gevoel van 'ownership' voor hun behandeling.	• *Vaardigheden van behandelaar (bespreken in intervisie)* • *Protocol met duidelijke rol voor cliënt met bijvoorbeeld huiswerk* • *Behandelaar monitort dit: gaat dit vooruit? Evt. bespreken met cliënt.*
Conscientieusheid	Cliënten houden zich niet aan de afspraken die gemaakt zijn omtrent het gebruik van de technologie (bijvoorbeeld 'huiswerk').	Cliënten leveren alle vereiste input om volgens schema door te gaan met het gebruik van VR in de behandeling.	• *Is dit van toepassing? Anders: behandelaar stuurt reminders* • *Behandelaar zet zelf reminders in zijn/haar agenda zodat hij/zij weet wanneer iets ingeleverd moet worden* • *Duidelijke afspraken maken met cliënt over 'huiswerk*
Geletterheid en opleidingsniveau	Cliënten hebben vanwege laaggeletterdheid en/of laag opleidingsniveau moeite met het begrijpen van de inhoud van de technologie.	De inhoud van de VR-behandeling sluit aan op de cognitieve vaardigheden van de cliënten.	• *Is dit van toepassing?* • *Behandelaar monitort of het VR-protocol aansluit bij de cognitieve vaardigheden van de cliënt (d.m.v. ervaringen & gesprekken met cliënt)* • *Behandelaar geeft, waar nodig, aanvullende uitleg* • *Onderwerp in intervisie*
	Cliënten hebben vanwege laaggeletterdheid en/of laag opleidingsniveau moeite het	Cliënten zijn goed in staat om de benodigde input te leveren	• *Onderwerp in intervisie* • *Behandelaar past, waar nodig, de gevraagde input van de cliënt aan zodat het aansluit op vaardigheden*

Onderwerp	**Problemen/aandachtspunten**	**Doel**	***Activiteiten pilot - concept***
	leveren van input voor de technologie.	voor het succesvol inzetten van VR in hun behandeling.	• *Behandelaren monitoren dit (advies voor zwemfase)*
Ervaren voordelen	Cliënten ervaren weinig tot geen voordelen van de technologie voor zichzelf en hun behandeling.	De cliënt ervaart en is zich bewust van de voordelen die VR heeft voor zijn/haar behandeling en dagelijks leven.	• *Vaardigheden behandelaar: regelmatig evalueren met cliënt en bijstellen indien nodig* • *Behandelaar bespreekt toegevoegde waarde regelmatig met cliënt ter bewustwording* • *Behandelaar 'beloont' cliënt d.m.v. complimenten*
	De cliënt heeft geen kennis van het bestaan en/of de toegevoegde waarde van de technologie.	De cliënt is in staat om potentiële voordelen van VR voor zichzelf te benoemen.	• *Behandelaar bespreekt de toegevoegde waarde bij de introductie van VR.* • *Regelmatig aandacht voor voordelen gedurende de behandeling (vaardigheid behandelaar)*
Psychosociale situatie	De thuis- en/of privésituatie van een cliënt is van negatieve invloed op het gebruik van de technologie.	VR wordt ingezet op een manier die aansluit bij de thuis- en privésituatie van de cliënt.	• *Behandelaar bespreekt met cliënt of er op dat moment lastige dingen spelen die in VR behandeld moeten worden en/of eerst besproken moeten worden.* • *Voor elke VR-behandeling is er eerst aandacht voor de huidige staat van de cliënt.*
	De mentale staat van een cliënt is van negatieve invloed op het gebruik van de technologie (bijv. crisis; psychose; ernstige depressie).	VR wordt niet ingezet bij cliënten wiens mentale staat dit niet toelaat.	• *Beweegleiders vragen bij collega-instellingen en CleVR uit of er contra-indicaties zijn* • *Onderwerp van intervisie* • *Overzicht van type problematiek waarbij VR niet mogelijk of wenselijk is a.d.h.v. ervaringen behandelaren* • *Aandacht projectgroep voor 'motion sickness': in hoeverre is dat een probleem?*
Technische vaardigheden	De cliënt heeft niet voldoende technische kennis en vaardigheden om (zelfstandig) te werken met een technologie.	De cliënt ervaart voldoende vertrouwen in zijn/haar vaardigheden om met VR te werken.	• *In kaart brengen of en zo ja welke vaardigheden cliënten nodig hebben.*
Beschikbaarheid van techniek	De cliënt heeft geen beschikking over technologieën (zoals een laptop of mobiele telefoon) om zelfstandig te werken aan een de behandeling. De cliënt heeft geen eigen werkplek om zelfstandig te werken aan de behandeling.	Niet van toepassing	
Reflectieve vaardigheden	De cliënt heeft niet voldoende vaardigheden om zelfstandig na te denken over en te reflecteren op gevoelens, cognities en	Eventueel individueel 'huiswerk' sluit aan op de reflectieve vaardigheden van een individuele cliënt.	• *Projectgroep: in hoeverre is 'huiswerk' nodig en wenselijk in bestaande protocollen?* • *Eventueel aanpassen huiswerk*

Onderwerp	Problemen/aandachtspunten	Doel	*Activiteiten pilot - concept*
	gedragingen gerelateerd aan de technologie.		• *Bij ontwikkeling nieuwe protocollen: wat moet de cliënt zelf doen, en verschillende typen opdrachten zodat er gekozen kan worden?*

Technologie

Onderwerp	Problemen/aandachtspunten	Doel	*Activiteiten pilot - concept*
Gebruiksgemak	Het gebruik van de technologie is niet intuïtief, helder en gestructureerd voor behandelaar en/of cliënt.	VR is op een makkelijke manier te gebruiken door de behandelaren.	• *Goede training door CleVR* • *'Gids' met uitleg waar alles online terug te vinden is* • *Goede helpdesk* • *Samenwerking met 'VooRuit met VR' project: bevindingen over gebruiksvriendelijkheid dashboarden doorgeven aan beweegleiders zodat het eventueel aangepast kan worden* • *Oefenen met de set* • *Meer focus op software tijdens de training* • *Twee therapeuten samen behandelen* • *VR kamer*
	De uitleg voor het gebruik van de technologie is opgezet vanuit de technologie, en niet vanuit de gebruiker (ingewikkelde instructies).	Er is een heldere, makkelijk toegankelijke uitleg voor het gebruik van VR.	• *Duidelijke instructies van CleVR vragen* • *Zelf (beweegleiders en behandelaren) uitleg-document opstellen en online zetten* • *Eén goed te vinden plek waar alle uitleg staat* • *Eventueel: online training ontwikkelen?*
Presentatie van inhoud	De manier waarop de inhoud van de technologie wordt gepresenteerd sluit niet aan op de voorkeuren of eigenschappen van de gebruiker.	De inhoud van de technologie sluit goed aan op de behoeften van de behandelaren en cliënten.	• *Regelmatig evalueren van vormgeving dashboard en virtuele elementen, verbeterpunten doorgeven aan beweegleiders (koppeling VooRuit met VR project).* • *Protocollen opstellen samen met behandelaren.* • *Bestaande protocollen opzoeken, toepassen, evalueren en eventueel verbeteren.* • *Ruimte voor individuele aanpassing in protocollen zodat ze ingezet kunnen worden bij een breed scala aan cliënten.* • *Continu evalueren en verbeteren van protocollen in projectgroep-bijeenkomsten.* • *Opstellen handzame protocollen.*
Visuele vormgeving	Een negatieve indruk van de algemene 'look & feel'/het design van de technologie van behandelaar en/of cliënt.	Behandelaren en cliënten hebben een positieve indruk van het ontwerp van de VR-omgeving.	• *Zandbaktijd: tijd om de technologie te leren kennen* • *Eerste indruk bespreken in bijeenkomsten van projectgroep*

Organisatie

Onderwerp	Problemen/aandachtspunten	Doel	*Activiteiten pilot - concept*
Introductie van technologie aan behandelaren	De organisatie organiseert te weinig activiteiten om behandelaren te informeren en trainen in het gebruik van de technologie.	DG Connected en de stichtingen organiseren voldoende en veel verschillende activiteiten om behandelaren te informeren over VR op de lange termijn.	• *Blog bijhouden* • *Communicatie via Intranet* • *VR-thema bijeenkomsten* • *VR-tour: met de set langs verschillende teams zodat behandelaren het uit kunnen proberen*
	De organisatie organiseert geen goede activiteiten om behandelaren te informeren over of te trainen in het gebruik van de technologie.	DG Connected en de stichtingen organiseren goede, aansluitende en diverse activiteiten om behandelaren te informeren over VR op de korte en lange termijn.	• *Blog bijhouden* • *Communicatie via Intranet* • *VR-thema bijeenkomsten* • *VR-tour: met de set langs verschillende teams zodat behandelaren het uit kunnen proberen*
	De organisatie communiceert te weinig over de nieuwe technologie en dat er een club aan het experimenteren/gebruiken is.	DG Connected en het projectteam communiceren vaak en op verschillende manieren over de duikfase en later de zwemfase.	• *Blog bijhouden* • *Intranet: regelmatig berichten* • *Presentaties binnen teams door leden Duikteam* • *Werkatelier/andere bijeenkomsten over VR* • • *VR promoten in meetings eigen team* • *Promotie gericht op collega's en departementen*
Inhoudelijke ondersteuning van behandelaren	De organisatie biedt te weinig (structurele) inhoudelijke ondersteuning voor de behandelaren om ze te helpen met het (blijvend) integreren van de technologie in de behandeling.	Behandelaren weten waar en hoe ze, indien nodig, inhoudelijke ondersteuning kunnen krijgen om goed te kunnen werken met VR.	• *Intervisie* • *Bereikbaarheid collega's voor vragen (maatje?)* • *Bereikbaarheid beweegleiders* • *Laagdrempelig contact met andere instellingen/behandelaren met meer ervaring* • *Website/pagina met informatie, filmpjes, protocollen, et cetera ontwikkelen: alles op 1 plek, laagdrempelig en makkelijk toegankelijk*
	De organisatie stelt behandelaren niet op de hoogte van beschikbare kennis, training, ervaren collega's en ambassadeurs.	Er is een duidelijk, organisatie-breed overzicht van beschikbare hulpbronnen en ondersteuning.	• *Ontwikkeling website met informatie* • *Leden 'duikteam' zich laten profileren als VR-expert binnen (en evt. buiten) hun team.* • *Veel en diverse communicatie over VR*
Integratie in organisationele structuren	De technologie is niet voldoende geïntegreerd in activiteiten van de organisatie, bijvoorbeeld vergaderingen, MDO's of jaargesprekken.	Elke stichting van de Dimence Groep die aan de slag wil met VR heeft een duidelijk plan waarin staat hoe VR (bij behandelaren/teams) structureel aan bod komt in	• *Stichtingen vragen om plan van aanpak n.a.v. een template* • *Nauw contact tussen teamleiders en DG Connected* • *Vast onderwerp van projectteam* • *Projectteam stelt enkele tips/best practices op* • *Kennisuitwisseling tussen directie en teamleiders van verschillende stichtingen*

Onderwerp	Problemen/aandachtspunten	Doel	*Activiteiten pilot - concept*
		officiële bijeenkomsten en momenten.	• *Bijeenkomst met directie van alle stichtingen na afronding duikfase: hoe nu verder?*
	De technologie komt niet voldoende aan bod in producten/richtlijnen van de organisatie, zoals beleidsplannen, doelstellingen, of behandelprotocollen.	Elke stichting van de Dimence Groep die met VR wil werken besteedt aandacht aan VR in officiële documenten.	• *Nauw contact tussen DG Connected en directie van stichtingen* • *Suggesties door DG Connected* • *Bijeenkomst met directie van alle stichtingen na afronding duikfase: hoe nu verder?*
Noodzakelijke randvoorwaarden voor gebruik	De organisatie zorgt niet voor voldoende technische randvoorwaarden zoals geschikte apparatuur en goed internet.	DG Connected zorgt voor goede technische randvoorwaarden.	• *Regelmatig pilot-testen met projectteam-leden voordat er met clienten wordt gestart* • *Regelmatig evalueren met behandelaren: verloopt alles technisch gezien naar wens?* • *Nummer helpdesk CleVR zichtbaar ophangen in de VR-behandelruimte.* • *Afspraak met behandelaar: technische problemen op de mail naar de beweegleiders zetten.*
	De organisatie zorgt niet voor voldoende praktische randvoorwaarden zoals extra tijd voor behandelaren en geschikte ruimtes.	DC Connected zorgt ervoor dat de praktische randvoorwaarden zoals tijd en goede locatie geregeld zijn.	• *Aanwijzen van een vaste plek waarop VR staat in Deventer en Almelo in overleg met behandelaren* • *Aanmaken gedeelde agenda waarin leden 'Duikteam' VR moeten reserveren.* • *Behandelaren hebben voldoende tijd om te werken aan VR* • *DG Connected communiceert behoeften qua tijd met teammanagers en regelt compensatie/kostenplaats et cetera* • *Duikteam brengt alle praktische randvoorwaarden in kaart en bedenken oplossingen voor Zwemfase*

Externe factoren

Onderwerp	Problemen/aandachtspunten	Doel	*Activiteiten*
Eisen van verzekeraars	Het is voor de behandelaren niet duidelijk welke financiële prikkels er aan het gebruik van de technologie zijn verbonden door zorgverzekeraars.	Er is een duidelijk overzicht beschikbaar voor behandelaren met informatie over de business case van VR.	• *Document online zetten op de webpagina met alle informatie* • *Voorlichting over kosten aan team Duikfase* • *Korte lijntjes met sales over afspraken met zorgverzekeraar*
Kosten	De behandelaren weten niet wat het kost om de technologie te gebruiken, maar hebben ook geen	Behandelaren hebben een duidelijk inzicht in de financiële baten van hun gebruik van VR.	• *Document en/of filmpje online met duidelijke uitleg over de kosten en baten van VR (business case)* • *Goede voorlichting over kosten en baten aan het Duik-team.*

Onderwerp	**Problemen/aandachtspunten**	**Doel**	***Activiteiten***
	idee wat de kosten zijn als de technologie niet gebruikt wordt.		• *Transparantie over kosten: behandelaren weten bij wie ze terecht kunnen met vragen over financiën (beweegleiders)*
Stimulering vanuit overheid	Er is voldoende ruimte voor behandelaren om met de technologie aan de slag te gaan vanuit de eisen van de overheid.	N.v.t.?	•
Andere organisatie	De ervaringen van andere organisaties worden onvoldoende meegenomen/ geïnventariseerd.	Er is een overzicht van en (mogelijkheden tot) contact met andere ggz-instellingen die met CleVR werken.	• *Contact met CleVR over andere organisaties die de apparatuur gebruiken* • *Werkbezoek naar GGZ Delfland* • *Kennisuitwisseling stimuleren, bijv. Het delen van protocollen en implementatie-tips* • *Document met andere organisaties die met CleVR werken voor en door de beweegleiders* • *Werkatelier over VR met sprekers vanuit andere organisaties.*
Profilering organisatie	De behandelaren/mensen die met de implementatie bezig zijn weten niet in hoe dat wat ze aan het doen zijn zich verhoudt tot de ontwikkelingen bij andere organisaties.	Behandelaren zijn zich bewust van de huidige stand van zaken wat betreft VR in Nederland.	• *Voorlichting aan Duik-team door beweegleiders over de huidige stand van zaken* • *Beweegleiders spreken regelmatig met CleVR over nationale ontwikkelingen* • *Organiseren Werkatelier over VR met sprekers van andere organisaties.* • *Behandelaren van het Duik-team krijgen de mogelijkheid om op 'werkbezoek' of naar congressen/bijeenkomsten over VR te gaan.*