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Research Article

The use of VR tilt brush in art and psychomotor therapy: An innovative perspective

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ABSTRACT

Digitisation requires mental healthcare workers to be competent in using technology. Virtual Reality offers unique treatment possibilities because of its presence, its immersiveness, and the affect responses it produces. Although VR has been used in psychotherapy, it is fairly new in the field of art therapy. Painting applications such as Google Tilt Brush provide opportunities for practice, but art therapists have reported that they do not feel competent enough in the use of digital tools and online therapy. On another front, there have been no studies in clinical practice using Tilt Brush. In this study participants (N = 7, five art therapists, two psychomotor therapists) were given the opportunity to experiment with the Tilt Brush application in their clinical practice, using the Lean Startup Method. Participants filled out preparatory questionnaires, and a semi-structured interview was held at the end of the three-month trial to gain insight into experiences. The results showed that art and psychomotor therapists view Tilt Brush as an application with much potential in therapy practice. Participants said they gained competence and insight into how to use this application in therapy. This paper discusses qualities of Tilt Brush as well as its advantages and disadvantages in practice.

1. Introduction

Today's digitisation and computarisation of society requires health care workers to innovate in their practice and to keep pace with social and lifestyle changes. Digital media have rapidly taken hold in the field of mental health care (Lupton, 2017; Riva et al., 2007; Riva, Wiederhold, & Mantovani, 2019), not solely for their contemporaneity but also for their therapeutic advantages. Virtual Reality (VR) allows a person to have an interactive experience in a computer-generated three-dimensional (3D) environment. Participants wear head-mounted displays (HMD), thus immersing themselves in the digital world in which their movements are synchronised with their real-life movements, creating a lifelike experience. This immersiveness of this experience, which provides involvement and absorption, induces the feeling of "presence" in the participant, followed by affective responses (Riva et al., 2019). The feeling of condition of being present in a space or within one's immediate vicinity.

The quality of presence in VR has made it a promising tool in psychotherapy, and it is therefore now widely used in the treatment of anxiety disorders (Beidel et al., 2017), depression (Falconer et al., 2016), pain management (Freeman et al., 2017; Mosso Vázquez et al., 2019), eating disorders and schizophrenia. In the field of exposure therapy, under the name of Virtual Reality Exposure Therapy (VRET), it was proven to be effective in reducing fear and anxiety (Lindner et al., 2017). A number of available studies have shown that VR has added value in the treatment of people with psychological complaints such as trauma, panic, depression, aggression, stress and psychosis; this is shown by several researchers (Pot-Kolder et al., 2018; (Maarsingh et al., 2019). Geraets, der Stouwe, E., Pot-Kolder, and Veling (2021) described how VR enables a content that is not possible in real life. It has the potential to improve psychiatric treatment using aspects such as embodiment, self-led interventions and changing perspective technology. Because it is possible to practise in an artificial world, the experience of participants allows them to move out of their comfort zone and

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into the zone of proximate development (Pot-Kolder et al., 2018; ; Vygotsky, 1980). This helps people to learn to use different types of behaviour. The study conducted by PwC (2020) shows that it is easier and quicker to become accustomed to VR than to e-learning; according to their results, it goes four times faster, people show 275% more confidence to carry out the skill after practising, and they are four times more focused compared to e-learning. Put briefly, VR appears to be of added value in the learning process and in the mental process of restoration.

1.1. Tilt Brush: a useful VR painting application?

VR has also created a new form of artistic expression (Hacmun, Regev, & Salomon, 2018) with programmes such as Blocks, Oculus, Gravity Sketch and Google Tilt Brush, in which participants are able to "paint" around themselves in the 3D environment. These applications allow you to stand in your own painting or in someone else's painting and be completely immersed. It can in fact be said that the novel medium of VR extends beyond classical expressive art mediums (Hacmun et al., 2018), for it allows expression unrestricted by physical, natural laws (Kaimal et al., 2020). Patients can play with perspective, sizes and shapes that would not have been possible using tactile material such as paint or clay or working in 2D. Additionally, tools like VR create a unique opportunity for patients who are unable to use traditional materials due to cognitive or physical disabilities (Carlton, 2016; Hacmun et al., 2018).

Although VR has been studied in psychotherapy, little is known about its possible use in art and psychomotor therapy. As for Tilt Brush, its use was studied in small numbers in art therapy, most recently by using students as participants (Schaaf, 2019), by showing art therapists the medium of VR and Tilt Brush in a video (Ying-Chun & Chwen-Liang, 2018) and by using art therapists as participants "taking the viewpoint of the client and as observers" (Hacmun, Regev, & Salomon, 2021). These experiences were not conducted with clients in clinical practice. Schaaf (2019) found that student participants (N = 116) did not show a significant decrease in anxiety, stress and depression after a 15-minute session with the Tilt Brush application, although a tendency was found showing a general decrease in affect levels. Hacmun et al. (2021) concluded that, in their study, the art therapists (N = 7) foresee considerable potential in the VR medium for art therapy. They also propose a follow-up study in which participants are given the opportunity to use the medium multiple times over a longer period, and to experiment in an actual clinical setting, enlisting clients. Schaaf (2019) makes the same suggestions.

The next logical step would seem to be to actually try out VR in art therapy practice. The twofold problem that exists in this step is that 1) art therapists[2] have been hesitant in using digital media and generally feel unsure about their experience in this field, and 2) they do not know how to implement digital media in their practice (what assignments to use, which interventions to address, etc.).

The first problem becomes clear in research of the attitude towards use of technology in art therapy: in the past, art therapists were hesitant about the use of new technology (Carlton, 2014; Marks, Marks, & Brown, 2017; Orr, 2012) because they were unsure about the lack of tactile input and sensations (Orr, 2012). Art therapists also state that they feel they are lacking in experience; in a survey of the experiences of 281 art therapists (Haeyen, 2020) in giving online therapy, what primarily came forward was that they basically had `no experience' (77.2%) to `almost no experience' (13.9%) in working with online art therapy. Art therapists turn out to be very unsure of how to act if they will regularly use digital media that go beyond making video calls or using mail or chat. The hesitant attitude in using digital media in therapy can be derived from the main focal point of art therapy: its experiential and active nature is considered the core of the profession, as many authors state (e.g. Cimmermans & Boomsluiter, 2007; Emck & Scheffers, 2019; MacDonald & Chaiklin, 2017; Malchiodi, 2011, 2018; Wheeler, 2015). Art therapists focus on sensorial perception, moving, getting into action and literally making use of behavioural change. They carry out their work in their art therapy rooms they know so well. With a few exceptions, they seem to be very attached to their familiar and cherished analog manner of working. Thus far, working with VR has not really become part of that. This article proposes that VR does have an experiential nature. Tilt Brush allows for gestural, full body sensory engagement and has a quality of "presence". The ability to use hand controllers and sensors to creatively engage using full body movement in space in the here-and-now offer specific experiential qualities. It is therefore suitable in art therapy.

The second problem is the methodological implementation of digital media in art therapy practice. The questionnaire sent to art therapists (Haeyen, 2020) shows that art therapists are `somewhat positive' to `highly positive' (35.9% and 10.7%) towards the use of technology, but they feel `fairly' to `extremely incapable' of offering this (26.7% and 4.6%). Using more digital tools is invariably an aspect people think of when they hear of innovation in art therapy. The questionnaire clearly showed the need to resolve this problem. People definitely want to work more with technology and they are interested in the possibilities, but how?

There have been few attempts at creating methodologies for the use of digital media, and so it does not yet have a sound basis in clinical practice. VR is an extra cost for mental healthcare and the technology and techniques are still quite unknown. Art therapists (and all mental health care workers) therefore need to be educated or guided in the matter. There is a need for a practical try-out in which therapists can experiment with interventions, conditions, and attitudes in the use of VR. It has become increasingly important for art therapists to become competent and build their comprehension of computer technologies and to professionalise themselves. Digital media is not something to be ignored, but something to be investigated in its possibilities and limitations.

This led us to the following research question: how can art therapists become more capable of working with Tilt Brush? And: How can they use this application in their therapy for their clients' therapeutic purposes? To answer these questions, we set up a project. This article reports on the project entitled `Being telepresent as an art therapist; working with digital means in art therapy'. A subsidy was given in the ZonMw COVID-19 programme called 'Science in practice, for your practice' (ZonMw, 2020).

The objects of this research project were: 1) making art therapists capable of handling and working with Tilt Brush; 2) developing their knowledge of how to work with this application in art therapy for the client's therapeutic goals; and 3) developing a blueprint for online training, so that more art therapists can learn how to work with Tilt Brush. This research project took place from September 2020 through February 2021. We worked together in a triangle: schooling-research-practice. Teachers, researchers and art therapists from several different organisations took part and worked together with the innovation departments of the University of Applied Sciences and a mental health care institute. In this study it is proposed that VR, and specifically the Tilt Brush drawing application, create unique opportunities and novel perspectives for art therapists and clients in their art therapy practice.

2. Method

The research design involved action research because this makes it possible to stimulate individuals, a group or an organisation towards change, learning to work or cope with change, or learning to deal with new developments in society because it is possible to incite individuals,

[2] In this article we use the term art therapy, when the term psychomotor therapy could also be applicable. We do this for readability purposes.

a group or an organisation to carry out a change or learn to deal with new societal developments (van Lieshout et al., 2017). Action research is both a design and a strategy for change. For this purpose, art therapists came together in this project as representatives of various organisations to jointly develop and implement a change and to disseminate the findings within the organisation, the work field, or a number of organisations, to jointly develop and implement a change and distribute the findings inside the organisation of the work field: a third-person action study. The conduct of the art therapists is central in such a study and is subject to changes.

This research also makes use of the Lean Startup Method (Ries, 2011). At the heart of this is that people learn quickly what works and what does not. People's own assumptions or ideas can be tested efficiently in practice. An assumption is translated into a Minimum Viable Product (MVP) and this product or idea is tested in practice. The assumption "VR works better with young people than with older people" can be tested by having two young people and two older people set to work with the Tilt Brush. By repeating this brief cycle - devise an assumption, test it by gaining experience with it and then evaluate it - people arrive at the idea to develop it further. Applied in this way, it can lead to faster innovation and lower costs.

The intention of using the outlined approach was that the art therapists would become skilled in using Tilt Brush. By developing application know-how, the idea was that they would arrive at procedural knowledge, which involves being proficient in the use of the tool in their own context (Ebbens, 2004) and with a therapeutic objective (such as improved emotion regulation).

2.1. Research questions

As stated in the introduction, this study focused on the following questions. How can art therapists become more capable in working with Tilt Brush? And: How can they use this application in their therapy for the purpose of the client's therapeutic objectives?

2.2. Data collection and analysis

Data were collected using eight online questionnaires and via a semi-structured interview at the end of the process on their findings in relation to the Tilt Brush application. The personal details and questionnaires were analysed for participants' characteristics, averages and frequencies, for which the pre- and post-measurements took place based on a topic list to ensure that various aspects would all come up. The topic list was focused on the various stages of therapy (preparation, conditions, design, planning and execution, evaluation) and on the possibilities and restrictions discovered. The interviews were subjected to a qualitative, thematic content analysis in search for themes or patterns (Braun & Clarke, 2006; Verhoeven, 2020) and followed the steps 1) explorative encoding, 2) relevant encoding, 3) unique encoding and 4) provisional grouping. The data were thematised in this manner. The participants were interviewed individually. Each interview lasted about 45 min and each participant was interviewed once. The interviews were audio recorded and transcribed.

The art therapists and psychomotor therapists, being the participants in this study, could practise, possibly involving their clients, if but only if this fit seamlessly in an ongoing therapeutic process. If it did, clients were informed by their therapist about the project and its purpose. The client was not an immediate object of study, but the art and psychomotor therapists were. The participating therapists signed an informed consent form.

The first research question, 'How can art therapists become capable of working with Tilt Brush?' was addressed by 1) analysing the participants' use of the Lean Startup Method and its relevance in order to promote capability of art therapists, and by 2) analysing the questions from the questionnaires before and after the programme, about the level of capability of art therapists and the relevance of using Tilt Brush in gaining competence. The second research question, 'How can art therapists use this application in their therapy for the client's therapeutic purposes?' was addressed by the qualitative thematic analysis of the interviews held with the participants. Additionally, four case vignettes of patients' experiences, as observed by the therapists, are described to illustrate the use of Tilt Brush in the clinical practice of the participants.

2.3. Participants and recruitment

Participants were art and psychomotor therapists from a number of institutions and organisations in the national professional field. They were approached through the professional associations of the national Federation of Arts Therapists (FVB) via the network for on-site supervisor/interns for education and training, newsletters of lectorates and social media such as LinkedIn, Twitter and Facebook of the HAN Arts Therapies Course. Participation was open to a maximum of twenty art therapists from the work field and to art therapy instructors. In addition to the Tilt Brush, there were two other digital tools people could investigate, on which we report in another publication. In the group of twenty therapists, seven opted to investigate the possibilities and restrictions of working with the Tilt Brush ($N = 7$). These seven therapists were five art therapists and two psychomotor therapists (five women, two men), who worked in specialist mental health care practice or in a private practice. They worked with the following target groups: adults with personality issues, adults with anxiety disorders and mood disorders, young people in forensic youth care, adults from closed institutions, clients with an mild mental disability and clients with acquired brain injury. They became acquainted with the VR glasses and the Tilt Brush application, tried them out and applied the Tilt Brush in practice. The average age of the art therapists was 45.9 years (SD 15.9; range 23–63 years).

2.4. Procedure

The art therapists were selected by means of a preparatory phase. This was intended to gather an active, motivated group of participants. This online preparatory phase consisted of three knowledge clips and four digital questionnaires. There were 123 responses to the first form, 86 to the second, 56 to the third and 33 to the last one. They were given a brief explanation about three different tools and the Lean Startup Method (Ries, 2011). They also answered self-made questionnaires in relation to their attitude towards digital resources and how they imagined they would be able to use them in therapy. This process of recruitment and becoming acquainted with various tools online took place in June 2020. A digital working environment was prepared for the participants. This was followed by a period of three months in which three sprint sessions (one each month) were held, as well as a concluding presentation session. The sprint sessions were allocated as follows:

- Sprint 1: Generate the first idea you want to carry out and create the first Minimal Viable Product (MVP) in the form of an intervention. Complete a test card, a template with which you can work out the first idea step by step on the basis of items prepared in advance.
- Sprint 2: Process the experiences and knowledge in sprint 1 and work these into a new MVP that can be tested in practice.
- Sprint 3: Process the experience and knowledge in sprint 2 and work these into a new MVP that can be tested in practice.

The day was concluded by a presentation session. Before that, the participants had made a film or presentation on the basis their experience and the knowledge they had acquired. They also looked at the longer term; how do they think they will use it, what needs further investigation?

2.5. The Tilt Brush application

Tilt Brush is an application for the Virtual Reality (VR) glasses in which, in 3D surroundings, people can draw, paint and build. Clients can stand in their own painting, as it were, and paint 360 degrees around themselves in three-dimensional surroundings. The Tilt Brush is available from Google and was developed by Skillman and Hackett (2016). In addition to painting, the app menu shows numerous other possibilities, such as inserting realistic images and other, more fantastical, images (see also https://www.tiltbrush.com/). People could also upload their own photos. In painting or working with chalk, an auditive depiction of the movement can be shown using 'audio-reactive brushes'. In this way it becomes even more realistic for the client to work wearing the VR glasses. The audio-reactive mode allows several people to draw in the same VR environment at the same time. The Tilt Brush is also used a great deal in the design industry by fashion designers, architects, dancers, and in the auto industry. Here too, 360 degrees offers advantages compared to working on plane surfaces. Each user needs a headset or VR glasses (Oculus, Quest or Rift), two controllers and a computer to set to work with Tilt Brush. The application uses 589.6 MB.

3. Results

The results consist of the summarised experiences with and results of the online training and the summarised results from the thematic analysis based on the interviews. Four case vignettes of patients are presented to illustrate the use of Tilt Brush with clients in the clinical practice of the participants.

3.1. Increasing capability of art therapists in working with Tilt Brush

Capability was increased by using the Lean Startup Method. This method proved to provide preliminary positive results and was also evaluated positively. By promoting the active participation of each participant, the Lean Startup Method was able to break through hesitance and to get art therapists to put their nose to the grindstone and work out interventions. The art therapists responded positively to the programme and evaluated it in the questionnaires as a helpful educational experience. Suggestions for improvement were: present a complete programme in advance, listing the meetings and describing additional expectations; practice sessions. Based on these experiences, the course was tweaked on the following points: an overview was shown of what is expected of the participating art therapists and when, and including more VR glasses in the budget for a subsequent project. The questionnaires were honed, and the central thread of the project was brought forward more clearly. This resulted in a manual for the online training programme that can be used repeatedly for art and psychomotor therapists in the work field and for students during their training as art therapists (Haeyen, Jans et al., 2021).

Participants were asked how competent they felt as an art therapist before and after the project. It quickly became clear that they did not feel at all competent in the beginning but this improved, see the results in Table 1. Afterwards, all participants were questioned about a number of assertions relating to the use of digital tools and to giving online art therapy, on a 5-point scale (1 = 'fully disagree' to 5 = 'fully agree'). The art therapists gave the highest score to learning and applying new skills; 'I have acquired new skills since I started to offer online art therapy': 4.00 (SD 1.00; range 2–5). Subsequently, art therapists gave a score of 3.86 to 'doing and experiencing is possible in an online environment (SD.69; range 3–5). The statement 'I am positive about giving online art therapy' scored 3.71 (SD 0.95; range 2–5). 'The treatment techniques I am familiar with can be readily applied via online art therapy' had a score of 3.29 (SD.95; range 2–5), followed by 'I feel greater work pressure when I have to offer online art therapy', scored 3.29 (SD.95; range 2–4. The final statement, 'I have affinity with digital technology' had a score of 3.17 (SD.49; range 3–4).

Table 1
The degree of proficiency of the art therapists before and after the project (Mean/SD/Range) ($N = 7$).

Item	Before project		After project	
	M (SD)	Range*	M (SD)	Range*
How competent do you feel in the use of online tools?	3.4 (1.4)ˆ	1–5	4.4(0.8) ¤	3–5

*Range 0–6: 0 = `not at all competent', 6 = `very competent'
ˆ 3.4 = between `not competent enough' and `somewhat competent'
¤ 4.4 = between 'somewhat competent' and 'fairly competent'

The results from the questionnaires show that the participants see opportunities to use Tilt Brush in their art therapy practice. The results at the outset of the project show that the art therapists see possibilities for the use of Tilt Brush. Their picture of it is positive, but they do not yet have enough knowledge about it.

In the evaluation of the project, the Tilt Brush scored 8.1 on a scale of 0–10 (0 = 'no possibilities, 10 = 'a great many possiilities') (SD 1.10; N = 7). The arguments mentioned for the use of this app called it an extra tool, an addition to the repertoire. Furthermore, the therapists think that it is a great non-verbal means of expression, that they can gain insight into emotions and feelings using this tool and that they can gain more insight into the client's thoughts. They are enthusiastic about the new addition and the extra possibilities within art therapy as it is at present. Initially, the therapists said that the application primarily seemed to be useful for art therapists, but later – and this also became visible in the project – people observed that other experiential therapy disciplines could make use of Tilt Brush (music therapy, drama therapy, psychomotor therapy, dance therapy and play therapy).

3.2. Applying Tilt Brush in clinical practice

The second question: 'How to apply Tilt Brush in clinical art therapy practice' was answered by analysis of the participants' in-depth interviews. The results from the thematic analysis were grouped in themes: preparation, material, indication, interventions/assignments, therapeutic attitude and usage in art therapy. In the following section, main results and remarks are summarised per theme.

3.2.1. Preparation

Setting to work with Tilt Brush was a journey of discovery for the respondents. Some technical skill proved to be needed for this. It was necessary to feel the freedom to be allowed to play, as three respondents put it.

> "Daring to try new things is helpful when you start in VR." (participant 1, art therapist, 60 y/o)

Based on instructions, trying things out or watching Youtube films, people could gain technical skills. The respondents said that the app could be used intuitively, that it was easy and simple to use. Respondents thought it would be useful if they had a bit more explanation as to what options there might be. Two respondents said that the 'younger generation' would probably master the technical skills before they did. One respondent was unable to discover the app on her own. But this is not necessarily a problem, seeing as all therapists said that it also worked together with the client:

> "You don't need to know the entire story before you start, and I saw that it's also fun to figure things out with a client." (participant 3, art therapist, 54 y/o)

Alongside technical skills, it turned out that only a small space was needed in which to practise (large enough not to knock things over and to feel free in your movements). Lastly, they needed time to make preparations. A tv screen or telephone on which you could stream the

client's actions and follow them was found to be necessary.

3.2.2. Material

All respondents regard Tilt Brush as a good tool, pleasant to work with, having many possibilities. For example, some said that the application arouses playfulness in clients and can offer insight. A condition in therapy is that is the therapist can watch along on a screen, five therapists said. In this way you can ensure safety, you can make interventions and guide the client if he or she is in a 'cocoon' of their own.

> "You need the interaction, and you only get it once you can sit alongside and look together with the client. Otherwise clients feel very secluded." (participant 6, psychomotor therapist, 36 y/o)

Just after this project, Google made Tilt Brush open source and presented multiplayer version: `MultiBrush' (Facebook Technologies, n. d.) which offers new possibilities, see discussion. The therapeutic possibilities of here-used individual version of Tilt Brush proved to be positive. You can work with brushes of varying thickness and colours, you can examine images literally from a distance by zooming out and taking a different perspective (teleporting), you can work with landscapes amd objects you place in it, the work can be stored, a mirror image can be made, allowing clients with non-congenital brain injury to make a complete drawing, you can 'step into' other people's work, and so on. The individual version of Tilt Brush is not suited as a means of teletherapy or telepresence, because people cannot be together in the virtual space. The multiplayer version offers an interesting option.

> "Despite the physical limitations, there are a great many possibilities. Their world of experience grows larger, literally. They can do things they would not normally do and they can concretely practice it at home." (participant 7, psychomotor therapist, 30 y/o)

3.2.3. Indication

Target groups for which Tilt Brush can be used are, according to the respondents: clients with non-congenital brain injury or mild mental disability, clients with traumas, depressions or personality disorders, in young people but also in older people, the only condition being that clients have some skill and coordination so that they can click the buttons. In this way, a terminally ill young woman was able to experience greater space in which to more around than she presently has simply by working with this application. She thoroughly enjoyed it, according to the therapist. In this case her mother could watch her daughter on an iPad in her daughter's world and the experience could be shared. They were both cheered by this and they could briefly enjoy being together. The daughter became enthusiastic to try out new things and for her, it had a stimulating effect, according to the therapist.

> "The VR glasses are a great finding for bedridden patients so that they can still move about." (participant no. 2, art therapist 63 y/o)

Several references were made to clients with traumas. They can create a world of their own in which they can make choices and gain self-confidence.

> "Clients with traumas say 'I'm the boss in this world'. You are definitely in charge." (participant no. 3, art therapist, 54 y/o)

Clients with personality issues can practise emotion regulation by portraying their emotional world and viewing it from a distance. Two therapists said that depressive clients went through a genuine transformation once they had tried Tilt Brush, "as if they were on a mini-holiday." These clients were able to stop 'brooding and feeling gloomy' and to step into the imaginary world. They often started out in the session very differently to how they felt afterwards. Several respondents noticed that clients came out of therapy in a much lighter mood than the way they went in.

Counter indications according to the respondents are multiple severe limitations, vulnerability to psychoses, easily being overstimulated, and gaming addiction. For patients who are vulnerable to psychoses, Tilt Brush can be too overwhelming, and clients who are addicted can become engulfed in the other world, where it is so easy to flee. The respondents said that this is why it is important to keep the intention of using Tilt Brush in the back of your mind. It is meant to benefit the client in his or her daily life.

One respondent said that an open attitude towards target groups is important.

> "There were clients of whom I had expected that Tilt Brush would be less of a success, such as a person who readily becomes overexcited, or an older patient, but the opposite was true." (participant no. 5, art therapist, 23 y/o)

Tilt Brush in the individual version is basically suited for individual therapy or for working in pairs. In the individual version Tilt Brush version it is not possible to work in the same image at the same time with more than one or two people. Think here, for example, of coaching each other while working, with clients working in pairs (one active, the other mentoring).

3.2.4. Working methods

According to the respondents, the value of Tilt Brush lies in playing, discovering and literally getting into action. This fits with the experience-focused nature of art therapy. There are endless types of working methods that can be used. The object of the session is always defining, people said. Initial and new experiences were gained by converting the working method from art therapy. Working in this manner, they could give shape to a safe space and build a hut. Emotions could be acted out, which allowed them to be regulated; words and thoughts could be written down; they could be made larger or smaller. The impact of visual art forms they had made could be studied.

3.2.5. Therapeutic attitude

Six of the seven respondents said that there was a big difference in attitude between working with this digital tool and the habitual 'analog therapy'. The fact that, while working, you are unable to look each other in the eye, and the client is in a completely different world, calls upon the therapist, said four respondents.

> "More than in analog therapy, you need to keep the interaction alive so that the client does not feel alone or isolated. The therapeutic attitude is very active and coaching." (participant 3, art therapist, 54 y/o)

The less direct contact had advantages as well. One of the respondents said that it was also perceived as both pleasant and safe, and that there was not always eye contact. Because of this, the client seemed to be able to focus more completely on the working method. The less direct contact must be given quite some thought, certainly if there are attachment issues: about the influence this has and how coaching/counselling must be carried out so that the client perceives the presence of the therapist as adequate and safe. For some clients it might be appropriate to first have the experience of feeling safety, boundaries, attention issues before the therapist comes into the clients world via their own headset or via an avatar in the multiplayer version.

3.2.6. Use in art therapy

Tilt Brush is perceived by all respondents as a possible new tool for art therapy. It is seen as a complement to the existing range of possibilities.

> "People literally start moving, they come into action; this is regarded as useful added value." (participant 4, art therapist, 55 y/o)

It may also offer an outcome in times of COVID-19, in which more online work needs to be carried out. But for this, it is necessary to be able

to coach/counsel from a distance or to be in the same virtual space at the same time. The tool is also innovative and is in line with spirit of the times, according to three therapists.

Tilt Brush offers the therapists the innovative possibility that they can literally locate themselves in the client's experiential world and can transfer and project themselves, because they can put on the VR glasses and step into the client's perception. A disadvantage for the therapist could be the practical aspect involved in the use of VR glasses; things have to be installed and the materials have to be trucked around. An organisation must also want to invest in the purchase and maintenance of the VR glasses. However, many organisations have a goal of offering more e-health, in which the use of this digital tool fits nicely.

For clients, Tilt Brush is also an interesting new tool. It makes it possible to work in a new way on many objectives such as structuring, increasing self-confidence, entering and exploring emotions, gaining insight, increasing body awareness or defining limits/boundaries. The impact of working with VR may reinforce the effect of a number of interventions that are ordinarily used in `analog therapy'. It might be a disadvantage for the client that not everything that has been thought up in a person's head can simply and easily be made. And a client can also be overly carried away in a another world. The infinitive canvas in the Tilt Brush can be initimidating. In the VR world directives can help to section off the infinite world with a skybox, creating a limited palette or bringing in a reference image from the real world as in the analog art therapy the therapist often puts constraints like not giving a blank piece of paper without directive.

Despite the fact that the training was simply a three-month try-out, the effect as it was observed by the participating art therapists, and what they saw in their clients, was thus far positive. Clients proved enthusiastic to try it, according to all respondents. Further research will need to substantiate the precise effect of Tilt Brush and to what degree this takes place. The respondents regarded the use of digital tool such as Tilt Brush as an important development.

> "It will become indispensable for art therapy. Time marches on, and the coming generation feels freer and are more familiar with it. Art therapist need to keep up with this." (participant no. 1, art therapist, 60 y/o)

3.3. Case vignettes

As a final complement to the results, four case vignettes were described to illustrate the use of Tilt Brush in clinical practice. These case vignettes represent the first observations of the participating art and psychomotor therapists. They give examples and specifications of the use of Tilt Brush and the influence it had on their clients.

David is a thirty-one year old man who was diagnosed with a personality disorder, not otherwise described, and for this purpose he is given specialised part-time treatment. He would like to gain more insight into his mounting anger and learn to regulate it better. He has been given short-term individual art therapy supplementary to the current part-time treatment, where he works to gain insight on account of his home situation: David presently feels a great deal of stress due to his home situation. He thinks he does not have time to attend the part-time treatment. Therapy every day seems like too much to him. His tension is high and he wants to make a visual work to represent this. He is quite good with the use of the VR glasses, which means that he can quickly start to create something. In the VR environment he creates a highly expressive picture of a small bedroom. This room really ought to feel safe to him, but he has shown it as full of stimuli. This he did, for example, by using moving and light-emitting lines that run criss-cross through, about and around each other. When David has been working for some time, he says that he feels lonely in the VR space. The therapist in this session is unable to look at David's design process with him (on account of a casting problem). When the therapist continuously talks to him, he feels less alone.

Lisa is a twenty-six year old woman who follows an outpatient visual art treatment as a result of post-traumatic stress complaints. She wants to work in therapy on her self-confidence and would like to have some more compassion for herself. Presently, Lisa is experiencing a great deal of tension and stress due to circumstances in society in relation to COVID and the lockdown. She really doesn't know how to deal with this, and grows gloomier and angrier. She says she is worried that she will become depressive again, and right now she has no desire to start anything new. In her own house Lisa feels safe, but outside of it she soon feels overwhelmed and unsafe. In the VR surroundings, Lisa creates a space where she feels peace and repose. She makes a pink heart surrounded by tiny bells and stars. The virtual brush she uses to shape the heart; the bells and stars make a shying movement. She says that it may look hectic to the therapist, but for her, the movement in her work is calming. Lisa tries out several VR environments, some lighter in colour than others. In the end, she finds the dark VR atmosphere best suited to the calming feelings she is trying to put across. In Photo 1 Lisa can be seen painting her calming space. By using the VR glasses, Lisa can briefly lose herself completely in her own world. All the triggers in the outside world disappear for the time being. When she takes off the VR glasses, she says she feels cheerful again and is in the mood to have some fun.

Betty and Louise are two women aged between 60 and 70 with a non-congenital brain injury who tried out the Tilt Brush and a few other applications. Betty is in a wheel chair and Louise uses a walker. The two of them have reduced mobility. Using the VR glasses, they had an opportunity to do something that was no longer possible for them in the 'real world'. The result was a huge 'Wow'. "Wow, I'm skydiving and I don't even dare to get on a plane", and "Wow, it's fantastic, just look at these gorgeous fish where I'm diving". They just never stopped smiling. They said that they had experienced something in a different world that felt safe because they defined the mood themselves and were in control of every activity they chose - so many possibilities that are usually no longer there. This provided positive tension and excitement, pleasure and much satisfaction. From a therapeutic point of view, it could clearly be seen that Betty and Louise had set something in motion, literally and figuratively, and that it led them to positive experiences, which seemed to have an ego-strengthening effect.

Hannah is a terminal ill young woman of 17. She says that, thanks to the Tilt Brush, she was able create her own safe environment where she is in control. "Finally, I can express my own mood and show people how it works" and "Oh boy, what a great opportunity to show what this feels like" and "Wow, fantastic possibilities for shaping". The 3D drawing literally forced Hannah to start moving and to look at the elements from several sides. She could stand in the middle of her drawing and give herself plenty of distance from it. From a therapeutic point of view, this gives the client a strong opportunity to express her feelings, to objectify, take another perspective, that is, to practise standing right in the middle of it versus looking from a great distance. It seemed to contribute to a sense of safety as well as independence.

4. Discussion

First, the online training using the Lean Startup Method proved to provide preliminary positive results and was also evaluated positively. The participating art therapists said that their competence in enlisting digital means in art therapy had increased thanks to the training. They learned new skills and saw good opportunities to enlist the Tilt Brush in their therapy, as a supplement to the existing repertoire. Next, important first experiences, based on thematic analysis, were grouped around the themes of preparation, material, indication, interventions/assignments, therapeutic attitude and usage in art therapy. The participants came to the conclusion that the Tilt Brush offers unique opportunities for art and psychomotor therapy practice. Patients were able to experiment and to view their work in different perspectives, from "inside" or far away. The individual work and the less eye contact might be appropriate to first



Photo 1. Lisa painting her calming space.

have the experience of feeling safety, boundaries, attention issues before the therapist comes into the clients virtual world. Tilt Brush also creates a full body experience: it provides different mechanisms that are not realisable in real life and brings an "active", "fun", and "new" quality to therapy that enables clients to be in a totally different world for a moment, a world in which they are in charge. Tactile material has a specific apple value that is not replaced in VR, more via skin / touch, nose / smell. In the Tilt Brush it is more about eyes / light stimuli. The experience in Tilt Brush is physically and emotionally blending into the VR situation. In the analog situation there is more reality check present by still being aware (to some level) of the surrounding environment while being involved in the artwork. In using the Tilt Brush, there is always a process for the client to choose/select first and then to apply something. This while in analog therapy there can more often be a more direct, emotional link between a material and the way the client uses it (thick or thin, hard or soft, much or little, varying or always the same). This makes the process of visual work different that can work both as an advantage (i.e. more thoughtful) or as a disadvantage (i.e. slowing down).

When it came to competence, art therapists said they were content with the course and reported higher outcomes in competence afterwards. It became clear that the 'action' component in the course was important to really start experimenting with the digital tool, the assumptions and the possible interventions. In practice, participating art therapists proved to be able to start with the tool almost immediately. The therapists, early adopters, thus pave the way for other therapists and art therapists who also want to start working in this field. Thanks to this, their knowledge and skill could spread out over the entire field of work. Via this impact on the art therapists, as many as possible clients could make use of these new opportunities.

How can art therapists use this application in their therapy for the therapeutic objectives of the client? The in-depth interviews with art therapists showed positivity towards the opportunities of using Tilt Brush in clinical practice. For example, it distracted from day-to-day stress because people spent some brief time in a fantasy world. Many clients find this `get away from it all' a great feeling: a moment of relaxation and unloading, after which they feel recharged. There are some requirements that have to be met: basic technical skills, time to prepare a session, the opportunity to monitor the patients' work on a screen and the tools and funding for the use of VR. Once these requirements were met, art therapists reported that many different assignments and methods ordinarily used in sessions can also be used in Tilt Brush. The wide range of opportunities fits the need for a wide variety of possibilities in the clinical practice of the art therapist. Just after this project, Google made Tilt Brush open source and presented `MultiBrush' ((Facebook Technologies,). This is a multiplayer implementation of the open source code for Tilt Brush which makes it possible to play, create, and enjoy art - with others in the same virtual space. This offers a completely different experience to be together with the client via avatars in virtual space. This presents possibilities for the use of Tilt Brush or Multibrush as a teletherapy or telepresence tool.

This study has different impact levels. For a number of years, health insurance companies and organisations have attached much importance to developing e-health interventions, and this study prepares the way for further development and research. The results show a positive attitude of participants toward the use of Tilt Brush in their clinical practice. It emerges as a multifaceted and innovative addition to the usual `analog' art therapy manner of working with a new range of possibilities. This study also has an impact on clients. Clients who have art therapy from local health authorities want an effective as possible treatment, one that aligns with their wants and needs. They benefit from a broad scope of possibilities that increases the chance of successful alignment with personal wishes. Tilt Brush offers unique chances and opportunities that can complement therapeutic practice and can help clients to look at their problems and emotions in an innovative way and by acquiring a new and activating experience.(Verhoeven, 2020)

There are some limitations to this study that need to be recognised. Although participants reported a positive experience in using Tilt Brush in clinical practice, the sample ($N = 7$) was too small to draw strong conclusions and a period of three months is too short to become

acquainted with the tools and also to achieve further-reaching development of methods. This is why we want to repeat the training for other art therapists and to encourage continued development in methodology. Secondly, in the procedure of selecting participants, only therapists who were already engaged in the field of digitisation subscribed for the program. This makes the results one-sided and it disregards therapists who have no interest in digital media. One might argue that art therapists who have no interest in digital media will not be using it in their practice in the near future, and therapists might choose their own preferred materials and methods. However, in 2021, digitisation is not something we, as art therapists and researchers, can simply ignore. Thirdly, art therapists engaging in this study all worked in different fields of health care. This resulted in a wide range of situations in clinical practice. On the one hand, this promotes eco-validity of the study; Tilt Brush was used in the real-life clinical practice of different mental health care organisations. On the other hand, not much can be said about one particular population because the sample was too small to compare results. However, the aim of this study was to gather initial insights into the experiences of art therapists with their use of Tilt Brush in clinical practice. For that reason, only careful and preliminary findings can be given.

The strengths of this study are that Tilt Brush was utilised and tried out with clients, both individually and in smaller therapy groups. This shows the progressiveness of the project and the art therapists. A powerful aspect of this study is that each art therapist could start out at his or her level and/or requirements in this project. Not all participants were able to apply it in the situation of professional practice, but all of them said that they had learned a great deal in relation to the use of this tool in art therapy. Some participants declared that they would continue on an independent basis. It can well be said that this project served as inspiration for art therapists and their employers as well. We reached a small group of early adopters and we can enlist the training process again and again.

The conclusions of this study lead us to the following recommendations: 1) We recommend repeating this study, using the customised course with the Lean Startup Method and a larger sample of art therapists, and strict use of questionnaires before and after the course. 2) The next step might be to offer a sequel course in which art therapists can further explore the possibilities of Tilt Brush, and to develop methodology in the world of VR. This would be helpful in the overall field of the art therapies. For those who start using Tilt Brush, it would be helpful to know the methodologies that can be put into practice. Different art/movement assignments can be further developed and researched. 3) The client's perspective should be involved in future studies. In this study, some case vignettes have been presented, but in-depth opinions and experiences of clients from their own point of view are lacking. This hiatus is an important one to fill, as mentioned by the research agenda of the Dutch Federation of Arts and Psychomotor Therapists (*Federatie van Vaktherapeutische Beroepen*). 4) Lastly, we recommend using measurable health indicators in future studies with clients in the form of validated and reliable outcome measures to measure effects of interventions with this tool.

Innovation in art therapy is dynamic. From the point of view of earlier experiences thus far, the VR experience has proved to have an impact on people who undergo it. Art and psychomotor therapists need to adapt their practice to modern times as well as to recent times, in relation to the pandemic. New approaches to working with technology and strategies employed by therapists need to ensure their clients' and their own safety, especially when delivered remotely. Further research, guidance and training could offer the support needed for developing a suitably safe online practice, according to a survey among 96 art therapists in the UK (Zubala & Hackett, 2020).

Art therapy is widely used and its importance is recognised in multidisciplinary collaboration. Art therapy has a motivating effect and contributes to willingness to take part in treatment. For many clients, experiential art therapy has a fundamentally different perspective and connects more directly with learning to deal with deeper underlying feelings than verbal therapy (which is perceived as more cognitive). Art therapy is known as person-oriented; this form of therapy fits in well with and can be geared to peoples' different wishes and needs. It is important that, in the future, art therapy continues to be adapted to wishes, needs and possibilities of clients. Using digital resources such as Tilt Brush gives this interesting added value for the art therapist's profession and for clients. It has a stimulating effect and offers special possibilities in the treatment process.

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