



The power of placebo

Designing for contextual healing: fostering placebo mechanisms by increasing patients' belief in physiotherapeutic hand treatments

Graduation report master's degree

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Executive summary

Research in medicine and psychology has demonstrated that placebo treatments can lead to clinically meaningful effects which are created by the context of the treatment. Therapeutic rituals are acknowledged as the core of contextual healing effects. To design for contextual healing in clinical practice, more insight is needed in the key ingredients of a 'successful' therapeutic ritual and in their working towards healing.

Research was executed in a hand therapeutic context. Because data from patient's questionnaires by the Xpert Clinic indicates that expectancies of conservative treatments are lower than that of surgical treatments, the question arose *how to increase this treatment outcome expectancies by integrating contextual healing mechanisms in a patient's journey for hand and wrist physiotherapeutic treatment?*

Through a literature study, placebo mechanisms were identified. These mechanisms lead to directly increased expectancies to heal, but they also affect each other. Impact and mechanisms of the placebo effect are context-, illness- and patient-dependent. However, patient-practitioner interaction is considered as the most important factor in contextual healing.

To understand the presence of placebo mechanisms in the hand therapeutic context, observations were made during different phases of the patient journey. Also, the presence of mechanisms was discussed with medical professionals, and patients were interviewed about their belief in treatment outcomes. Several mechanisms were already used by doctors and therapists, although not always in a conscious way. For example, patients are involved in diagnosis and treatment decisions. However, it was seen that patients' belief in a treatment was influenced by the overall appearance of the therapist they were facing. Finally, an important patients' motivator to belief in their treatment is the experience of improvement in daily life activities.

Using the insights on the presence of placebo mechanisms in the context of hand therapeutic treatments, several design concepts were made to foster placebo mechanisms. Among them were concepts that made results more experienceable, a concept that focussed on managing patient's expectations, a concept that stressed the hand-touching moment within a therapy session as an important moment of the therapeutic ritual and a concept that created better understanding to patients about their disease and reasoning for their exercises. The concept that was chosen to continue with was aimed at increasing the professional appearance and behaviour of therapists, in order to increase patients' belief in positive treatment outcomes.

A final design was made that fosters placebo mechanisms by increasing the way patients experience the therapist as a skilled medical professional. Specialised measuring: the tool organiser for hand therapists, presenting the measurement tools in an open, professional way to the patient. The design motivates the therapist to measure with a professional and structured attitude. The presentation of the tools lifts them towards the level of medical equipment. Being involved in a session with a skilled professional, the placebo effect on patients is increased.

By use of a prototype, the organiser was tested in actual therapeutic practice. Results showed more structured therapists' behaviour and showed patients' fascination for and attraction towards the design, indicating that the professional appearance and behaviour of the hand therapist and the session room is increased. Although direct involvement of patients could be improved, and a more suitable place for the design in the room has to be found, the design is assessed as useful by therapists. When patients experience the therapist, through the use of the design, as a more skilled professional, the design might contribute to contextual healing.

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1. Introduction

Research in medicine and psychology has demonstrated that placebo treatments can lead to clinically meaningful effects which are created by the context of the treatment. Leading researchers in the medical field acknowledge that therapeutic rituals are at the core of these contextual healing effects. To design for contextual healing in clinical practice, more insight is needed in the key ingredients of a 'successful' therapeutic ritual and on how these placebo elements can contribute to healing.

This master thesis (graduation) project was part of a collaboration between Delft University of Technology and Erasmus MC. The medical context was the one of hand and wrist physiotherapeutic and surgical treatments at the Xpert Clinic and Handtherapie NL (Fig. 1.1).

Because data from patient' questionnaires (retrieved by the Xpert Clinic) indicated that expectancies of conservative treatments were lower than that of surgical treatments,

the question arose: how can we improve the expectancies of patients on the outcomes of hand therapy in such a way that placebo effect is used the most? The design question was *how to integrate contextual healing mechanisms and their qualities in a patient's journey for hand/wrist physiotherapeutic and surgical treatment?*

This report consists of five parts. First, the placebo effect and contextual healing is framed through a literature study. Second, contextual healing in current daily clinical practice is explored through observations and patient interviews. Based on insights from literature and clinical practice, design directions fostering contextual healing are investigated in the third part. Thereafter, a final design of specialised measuring is presented, and finally the design is evaluated in a user test in actual clinical context. The report ends with recommendations for improvement and some final insights on designing for contextual healing learned during this project.



This report is written as master thesis for the master Design for Interaction (Dfi) at the Delft University of Technology, Faculty of Industrial Design Engineering. The project is executed as part of the Medisign Specialisation.



During the project, weekly meetings were attended at the hand and wrist study group, a hand surgery and hand rehabilitation research group at the Erasmus MC, Rotterdam. The research group is a cooperation between the Erasmus MC, the Xpert Clinic and Handtherapie NL. Researchers, medical students, hand surgeons and hand therapists are part of the group.



As member of the Equipe Care Organisation, the Xpert Clinic is a private medical clinic specialised in hand and wrist treatment, with locations throughout the Netherlands. The clinical practice within the Xpert Clinic and Handtherapie NL was the context of this project.



The hand physio and occupational therapists of Handtherapie NL work in close collaboration with the doctors/surgeons from the Xpert Clinic. The context of hand therapy was the one where most research activities were executed during this project.

Fig. 1.1: Involved parties during this graduation project.

Chapter's main goal

- Understanding the principles and working of contextual healing and placebo mechanisms.

Chapter's main methods

- Literature study

2. Framing contextual healing

For ages, people have used spiritual and psychological mechanisms next to physiological medical treatments to improve peoples' health status. Since the introduction of pharmacological medicines that are tested through randomised controlled trials (RCTs), halfway the nineteenth century, the effect of medication has been measured based on the difference with placebo medicines. In Western Medicine, for physiological treatments, spiritual and psychological mechanisms got a sham or 'fake' reputation. However, over the past decades it became more clear that placebo medicines and mechanisms in certain situations have an effect on psychological and physiological treatment outcomes. Even more, in RCTs, placebo treatment on patient groups had more effect than control groups with no treatment at all. Growing interest has risen about the mechanisms underlining these effects and their implications on treatment outcome.

With ageing society and the immense and more advanced possibilities for medical treatment, costs in healthcare are increasing a lot and are expected to increase even more in the coming decades. Looking at ways to improve therapeutic results without the use of expensive resources is of major importance. Healing rituals using placebo mechanisms can contribute here.

As start of the study, the goal was to *explore, through literature, the knowledge about and the use of the placebo effect and contextual healing in clinical practice*. Three areas were important to investigate.

First, to have a common ground for discussion, it is important to define the relation between the placebo effect and contextual healing. When the context surrounding a treatment comes in, how is patient's motivation related to it, especially because in (hand)therapeutic treatments, motivation seems to be a key aspect.

Next, what mechanism cause the placebo effect? Then, because from a designer's perspective patient experience is important, the relation between patient's experience and the placebo effect needs to be cleared.

Finally, when a basic understanding is set up, how is the placebo effect and contextual healing applicable in real life. Which factors are known to enhance the placebo effect and what are the characteristics of these factors? Furthermore, how are the placebo effect and context factors used in current clinical practice?

Method

To find answer on these questions, a literature study was done. Papers were found by use of Google Scholar. Papers involved terms like *'placeboeffect'*, *'placebomechanisms'*, *'contextual healing'*, *'design for contextual healing'*, *'patient expectancies'* and *'hand therapy expectancies'*. Based on title and abstract, promising articles were selected. Over forty papers were read, notes were taken. Finally, an overview of insights was created and a framework for contextual healing was made.

Contextual healing and placebo mechanisms

The definition of placebo and the placebo effect has changed over time, from a narrow definition to a more broader one. The broader definition used by Shapiro & Shapiro (1997) and Stewart-Williams & Podd (2004) stresses that a placebo can be both a substance and a therapeutic ritual, that has no specific (i.e. intended effect to a pre-defined condition) or inherent power to the condition that is treated.

However, if next to fostering the specific effect of a treatment, fostering the non-specific placebo effect becomes a goal of a treatment as well, the definition of a placebo intervention as 'inert' is not satisfying anymore.

Miller & Kaptchuk (2008) introduced 'contextual healing' as alternative for the placebo effect. *"When an active treatment is given, the overall response is the result of the treatment itself and the context in which it is given."* (Finniss et al., 2010). For this study contextual healing was defined as **fostering the physiological or psychological effects that context has on outcome of a medical treatment**, whereas the placebo effect can be described as **the physiological or psychological effect that context of a treatment has on treatment outcome**.

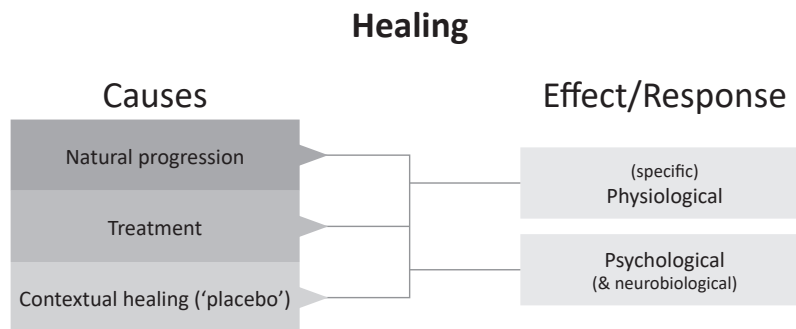


Fig. 2.1: Healing of the human body and mind.

Contextual healing and motivation in hand physiotherapy

During hand physiotherapeutic treatment, patients need to do exercises during treatment sessions and at home. To keep exercising, it is expected that motivation is key. For this study, two kind of motivations are separated from each other. On one hand, making patients motivated to continue their physiotherapeutic exercises can be considered part of the specific treatment. On the other hand, other kinds of motivation is considered part of contextual healing. Examples are motivation to achieve a goal (e.g. getting healthy, being able to execute certain tasks again), believing in the efficacy of the exercises, and believing that you have the skills to execute exercises, both part of the treatment outcome expectancies placebo mechanism.

Contextual healing and patient's experience

Not everything that benefits to the patient's experience benefits the treatment effect. However, there are certainly some aspects of patient's experience that contribute to the placebo effect and thus to the treatment outcome (examples will be given in the model up next). As Manary et al. (2013) formulate it, the challenge and opportunity is to "improve patient

experiences by focusing on activities found to be associated with both satisfaction and outcomes." Furthermore, to distinguish yourself as care taker from others in an open market, next to outcome efficacy numbers, patient's satisfaction becomes more and more important, of which patient's experience is an important factor as well.

Placebo mechanisms in contextual healing

Healing of the human body and mind consists of three powers (Fig. 2.1): **autonomous healing** that happens even if no treatment is done, **active therapeutic and specific healing**, and **contextual healing** induced by placebo mechanisms (Moerman, 1981). Two main mechanism underlying the placebo effect are mentioned in literature, complemented with two additional mechanisms (Fig. 2.2). Mechanism occur both conscious and non-conscious. The main two are **expectancies** and **classical conditioning**, whereas conditioning can be considered as in the past created expectancies, and they are not necessarily mutually exclusive (Steward-Williams, 2004). Moreover, it is proposed by Price, Finniss and Benedetti (2008) that all mechanisms "can be accommodated within the same explanatory model."

Expectancies can be divided into **treatment and patient self-efficacy expectancies** (Bandura, 1977, Crow et al., 1999, Stewart-Williams, 2004, Benedetti et al., 2005). For treatment, expectations about **positive and negative outcomes of the treatment** and about the **treatment process** are mentioned (Crow et al., 1999). For self-efficacy, **patient's involvement and empowerment in decision making and patient's skills to cope** with the effects of treatment or disease are the two mechanisms (Crow et al., 1999, Barrett, 2006). Finally, patients have expectancies based on the **social context** they are in and based on the social support (Crow et al., 1999, Colloca & Benedetti, 2009).

Conditioning, as mentioned, a specific way of creating expectancies (Kirsch, 1997, Geers et al., 2005a), can be about **past experiences** or about **cultural symbols** or cultural context of a patient (Papakostas & Daras, 2001, Welch, 2003, Stewart-Williams, 2004, Benedetti et al., 2005, Benedetti, 2012).

Motivational mechanisms of patients having a goal or desire (Price & Fields, 1997, Geers et al., 2005a, Stewart-Williams, 2004, Hyland, 2011), e.g. to feel better, to feel reduced anxiety, or to be able to do certain tasks again, and **emotional mechanisms** (Price, Finniss & Benedetti, 2008), e.g. the feeling of being cared for (Barret et al., 2006, Miller & Rosenstein, 2006) are considered two additional mechanisms, although Meissner et al. (2011) suggests that emotions that modulate pain experienced are induced by the expectations and motivational mechanisms.

Placebo outcome

Outcomes of all three treatment mechanisms, i.e. natural healing power, specific healing power and contextual healing power, can be (specific) **physiological** or **psychological** effects (Steward-Williams, 2004, Benedetti et al., 2005, Price, Finniss & Benedetti, 2008). Effects are both anatomical biological (Benedetti et al., 2005) and neurobiological (Kirsh, 1997, Finniss et al., 2010). Especially in pain related illness or other illnesses with subjective symptoms, contextual healing has a major role in patient's response (Kaptchuk et al., 2008, Doherty & Dieppe, 2009, Finniss, Kaptchuk, Miller & Benedetti, 2010). In more invasive treatments or more severe diseases in which the physiochemical effects are well

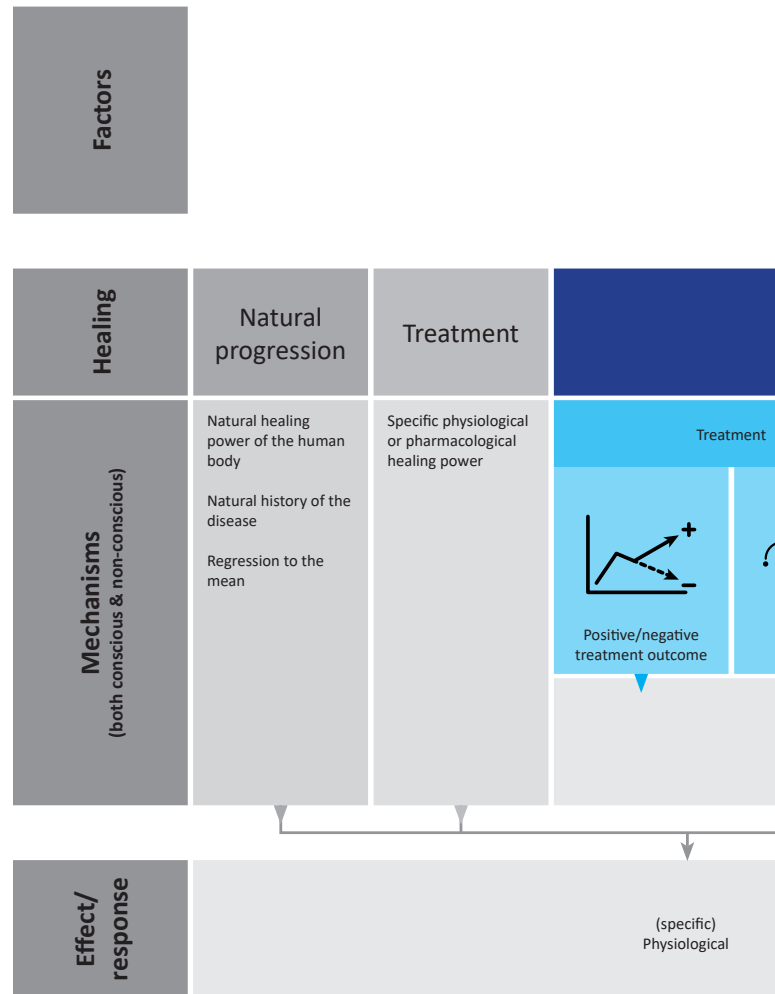


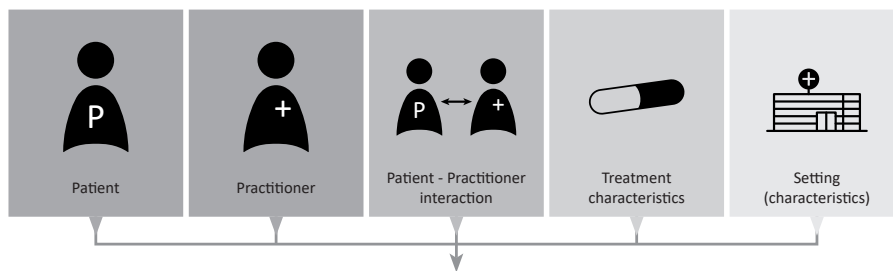
Fig. 2.2: Contextual healing through placebo mechanisms.

understood, the placebo effect has a relatively lower value compared to the specific treatment power, and the expectancies that do occur are already quite high (Shapiro & Shapiro, 1997, Papakostas & Daras, 2001, Wampold, 2001).

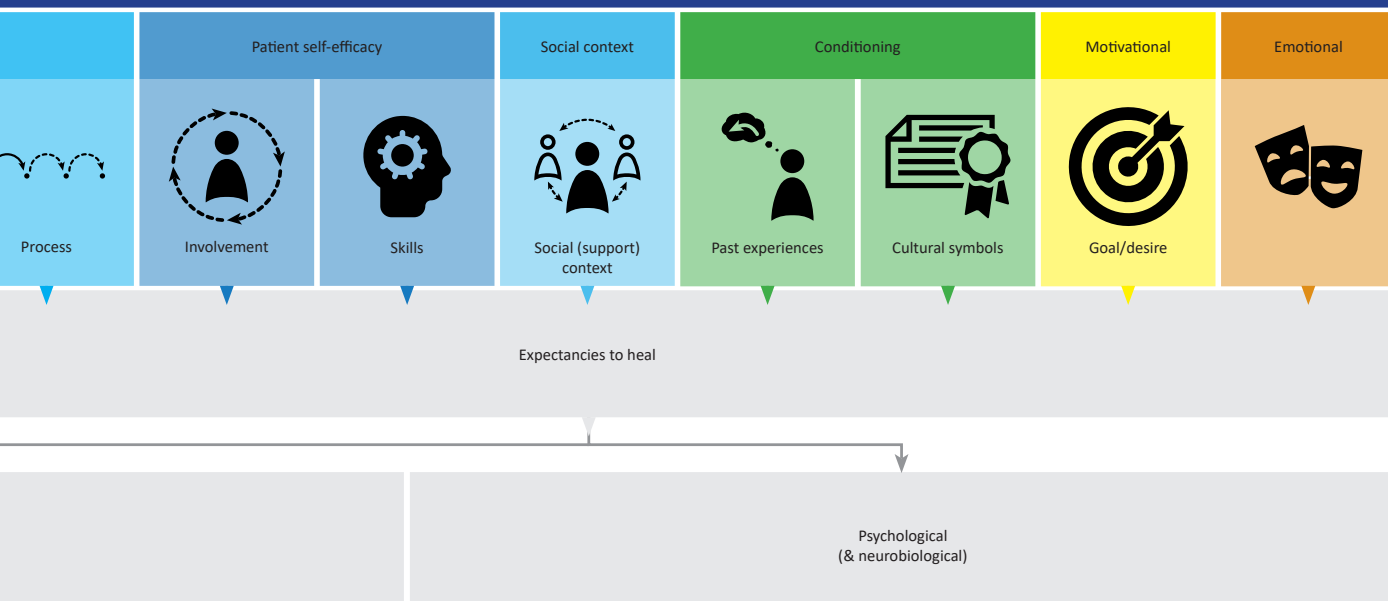
Context factors

Five factors are considered as determinants for defining the context of healing (Crow, 1999, Di Blasi, 2001, Miller & Kaptchuk, 2008). They are patient's characteristics and beliefs, practitioner's characteristics and beliefs, patient-practitioner's interaction, treatment characteristics and the (healthcare) setting in which a treatment takes place (Fig. 2.3). Similar to describing a context from a designer's perspective, the factors involve people, objects and places, that interact with each other over time.

Literature review contextual healing



Contextual healing ('placebo') through expectancies



Contextual healing in practice

It is widely accepted that the impact and mechanisms of the placebo effect are context and illness dependent. Although research was done to figure out if certain personalities are more willing to facilitate the placebo effect, e.g. optimism-pessimism research, evidence is weak or is not found at all (Ernst, 2001, Geers et al., 2005b). Therefore, the focus should be on the involvement of the context as a whole and its effect on placebo mechanisms and treatment outcome.

However, within the context, it is commonly stressed out that patient-practitioner interaction is the most important factor (Di Blasi et al., 2001, Miller, 2006, Kaptchuk et al., 2008, Price, Finniss & Benedetti, 2008). It is also mentioned that within this interaction ethical concerns should be taken into account, and deception should be avoided.

In practice, expectancies are already made at the first encounter of a healthcare journey (Finniss, Kaptchuk, Miller & Benedetti, 2010). Therefore, pure studies of placebo mechanism work best in first encounters (Benedetti et al., 2005), making these mechanisms hard to test individually, thus stressing out a holistic view on the context.

Placebo mechanisms through contextual factors

The placebo mechanisms described in the contextual healing framework work through the context factors. Examples of clinical implementation are given in literature. Expectancies about positive and negative treatment outcome can be managed for both patient and practitioner, and can be communicated between them as part of the treatment protocol (Crow et al., 1999, Barret et al., 2006, Tilburt, Emanuel, Kaptchuk, Curlin &

Contextual factors

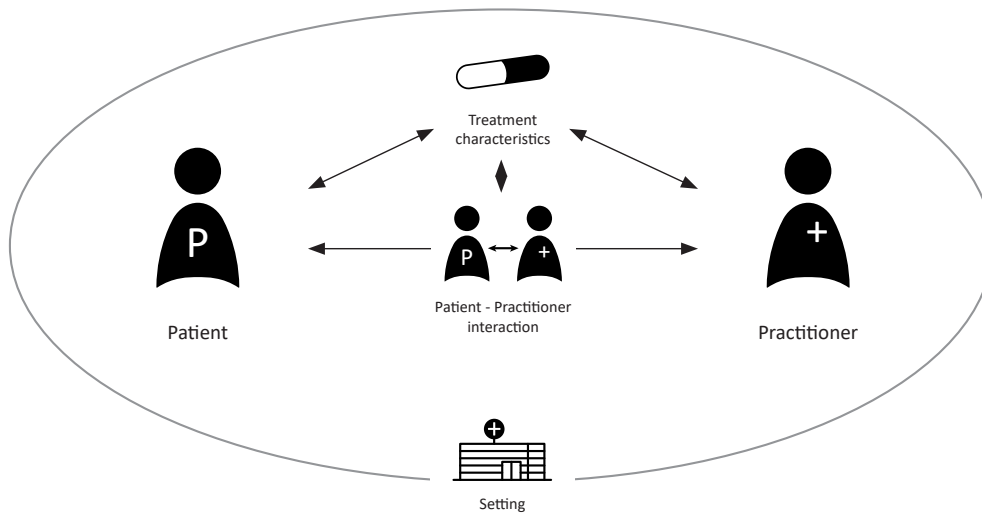


Fig. 2.3: Contextual healing factors.

Miller, 2008, Doherty & Dieppe, 2009, Benedetti, 2012, Testa & Rossettini, 2016, Bishop et al., 2017, Evers, Colloca, Benedetti et al., 2018). The steps that should be taken in the treatment process can be made clear to the patient, and the placebo effect can be considered as important part of a treatment (Crow et al., 1999, Colloca et al., 2004, Doherty & Dieppe, 2009, Testa & Rossettini, 2016, Bishop et al., 2017, Evers, Colloca, Benedetti et al., 2018). A patient-centred approach and communication, involving patients' preferences, and enhancing patients' skills to cope with disease effect and medical procedure and recovery process can lead to improved expectancies (Crow et al., 1999, Barret et al., 2006, Benedetti, 2012, Testa & Rossettini, 2016). A patient-centred approach does also include a tailored approach to the patient's sociocultural context and taking into account patient's past experiences (Barret et al., 2006, Benedetti, 2012, Doherty & Dieppe, 2009, Finnis, Kaptchuk, Miller & Benedetti, 2010, Bishop et al., 2017). For maximising the placebo effect that a treatment itself has, it is advised to use the appearance and level of competence of the practitioner and the healthcare environment in its advantage (Testa & Rossettini, 2016, Bishop et al., 2017, Howe et al., 2017). Finally, being aware of the fact that a treatment is a medical ritual, and that paying (extra) attention and the

feeling of being cared for is key in strengthening the meaning of such ritual (Barret et al., 2006, Doherty & Dieppe, 2009, Benedetti, 2012, Benedetti, 2013, Testa & Rossettini, 2016, Bishop et al., 2017). Trust, warmth, friendliness, empathy, compassion and reassurance were mentioned as emotional characteristics (Di Blasi, 2001, Barret et al., 2006, Kaptchuk et al., 2008, Benedetti, 2012, Howe, 2017, Howe et al., 2017, Evers, Colloca, Benedetti et al., 2018). In literature, there were little strategies found for incorporating motivational goal/desire oriented mechanisms in clinical practice.

Avoiding nocebo effect

The nocebo effect can be seen as a separate effect of contextual healing, or as a negative outcome of a placebo effect. There is common agreement that practitioners and patients should be aware of the nocebo effect and should try to avoid its impact (Testa & Rossettini, 2016). Furthermore, Evers, Colloca, Benedetti et al. (2018) point out that expectancies should be optimized without risking violation of patient's expectations and without harming patients' trust in the treatment. For this study, when the goal is to foster a placebo effect, the positive outcome is meant, and avoidance of a negative placebo or nocebo effect is meant.

Conclusion

This chapter defined the placebo effect within a framework of contextual healing. Contextual healing exists of fostering placebo mechanisms through the factors that play within a context, resulting in physical and physiological effects, contributing to both actual and perceived (experienced) wellbeing. Several possibilities were described to foster this mechanisms in clinical practice. Because expectancies are key in placebo mechanisms, and expectancies are set up at the start of a medical treatment, managing or influencing expectancies at first medical encounter seems promising.

It also became clear that every illness, context and patient has a unique mix of placebo mechanisms involved, and that these mechanisms influence each other as well. Therefore, it is important to find out how this mix looks like for the specific context of a hand therapeutic clinical treatment.

Finally, it is believed that patient-practitioner interaction is central to other factors. Assessing the placebo influence of this interaction in hand therapeutic context and intervening on this interaction are promising design (research) directions.

Chapter's main insights

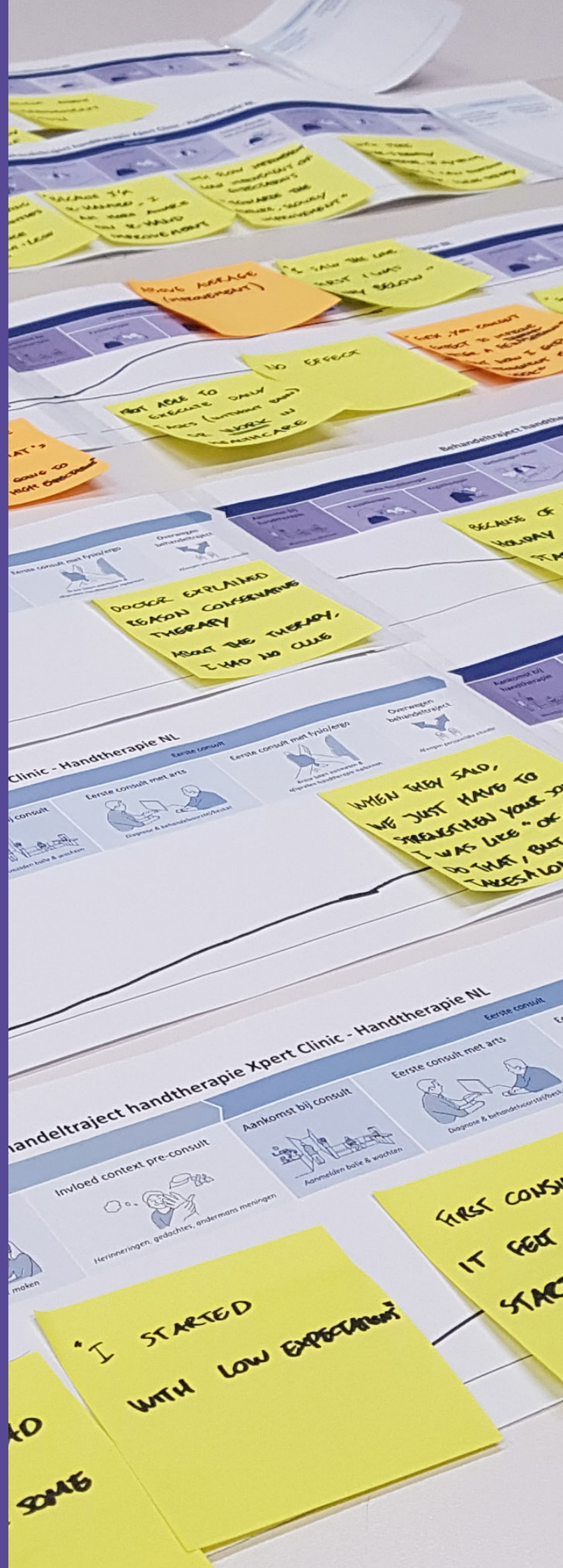
- Contextual healing can be defined as fostering the physiological or psychological effects that context has on outcome of a medical treatment.
- The placebo effect can be described as the physiological or psychological effect that the context of a treatment has on treatment outcome.
- Placebo mechanisms lead to directly increased expectancies to heal, but placebo mechanisms also affect each other.
- The impact and mechanisms of the placebo effect are context-, illness- and patient-dependent.
- Patient-practitioner interaction is the most important factor in contextual healing, and therefore a promising design (research) factor.

Chapter's main goal

- Understanding the use of contextual healing in daily clinical hand physiotherapeutic practice

Chapter's main methods

- Patient journey mapping
- Observations
- Discussion with professionals
- Patient interviews



3. Contextual healing in physiotherapeutic clinical practice

Knowing the placebo mechanisms that provide contextual healing, and knowing that they are illness- and context-dependent, how are these mechanisms used in daily hand physiotherapeutic clinical practice? How is the interaction between doctor, hand therapist and patient influencing contextual healing? This chapter aims to create an understanding of the use of placebo mechanisms in the context of a hand therapy journey at Xpert Clinic and Handtherapie NL. To investigate this,

observations were done during different phases of the patient journey (e.g. doctor consults, physio and occupational therapeutic appointments). To gain deeper insights on how patients create their treatment outcome expectancies, patients were interviewed, using their patient journey as guideline. Both research activities will be described in more detail, finished with the main conclusions.

Treatment journey hand therapy Xpert Clinic - Hand

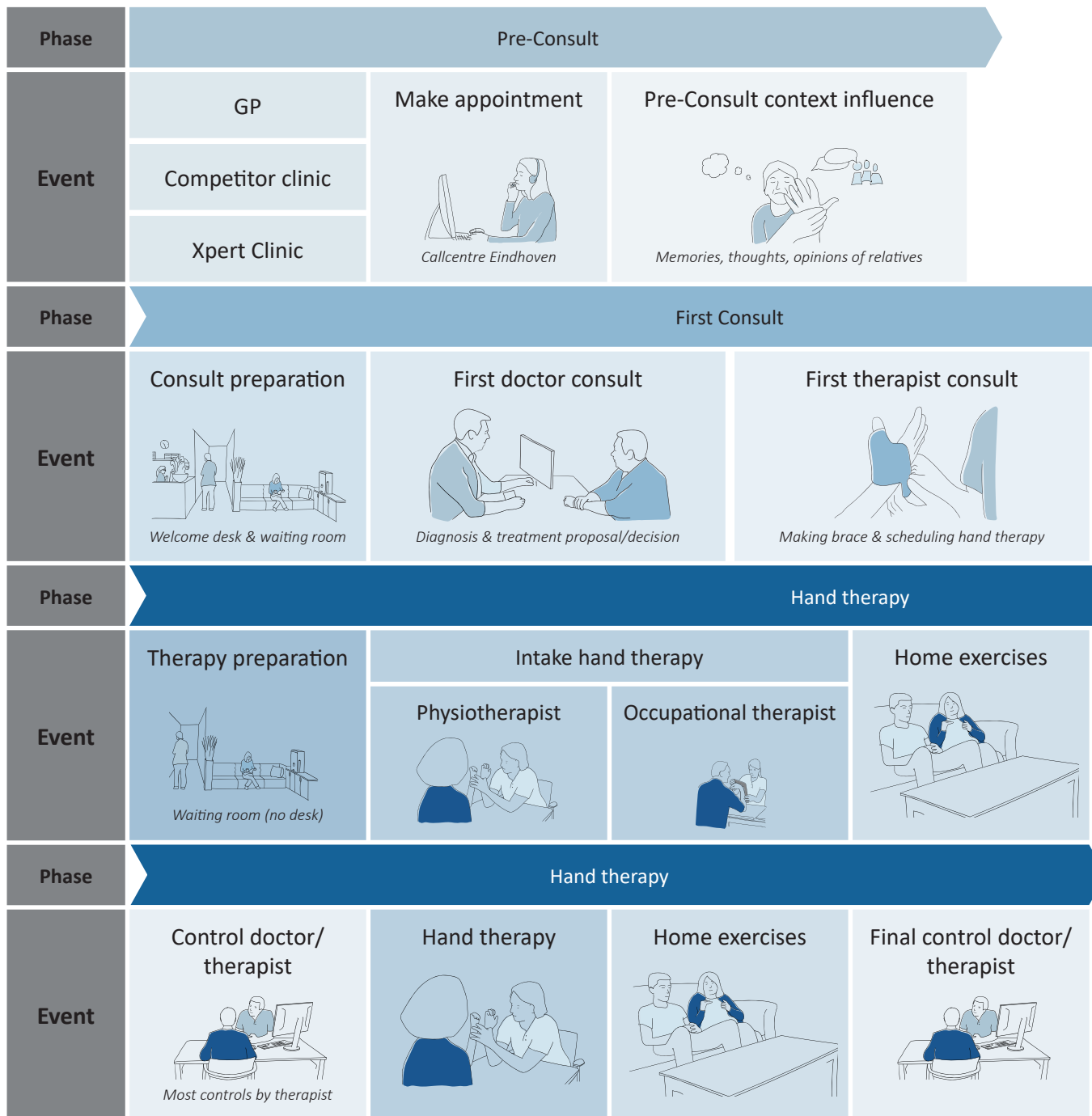


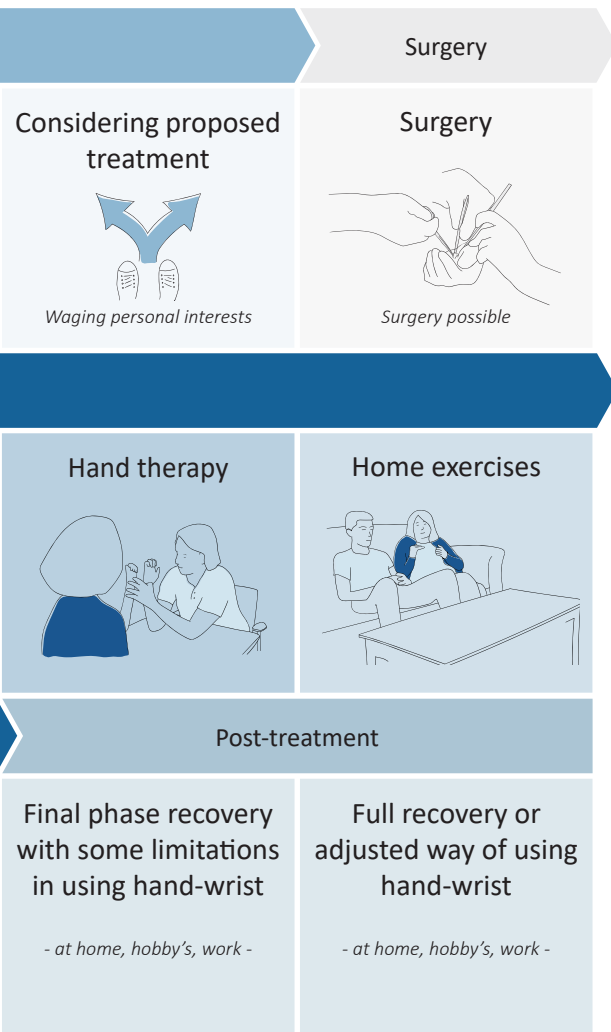
Fig. 3.1: Treatment journey hand therapy Xpert Clinic - Handtherapie NL

Patient journey

To start exploring placebo mechanisms in practice, an understanding of the context is needed, based on a patient's journey through the care process (Fig. 3.1). The patient can either follow a conservative treatment or a treatment including surgery. A patient following conservative treatment either can go directly

to Handtherapie NL or can get redirected from the Xpert Clinic. A surgical treatment at the Xpert Clinic will be followed by hand therapy at Handtherapie NL. The patient journey is divided in five phases: a pre-consult phase, the first consult, an optional surgery, the hand therapy trajectory and the post-treatment phase.

Handtherapie NL



Pre-consult phase: Patients get redirected towards the Xpert Clinic by GP, hospital or other clinic (to start a treatment, for a second opinion, or because other treatments did not work out well). Patients currently treated by Xpert Clinic or Handtherapie NL can also get redirected to the doctor again if new complications are apparent.

First consult: During the first consult with a doctor, patients get diagnosed and a specific treatment is proposed and decided on with the patient. Directly afterwards, patients meet up with a physio or occupational therapist to schedule hand therapeutic sessions and make a brace when needed. Some patients need some time to rethink the proposed treatment before deciding.

Surgery: Patients with a surgical treatment will continue with surgery. After surgery, patients will always continue with rehabilitation hand therapy. For this project, because conservative (non-surgical) treatment was the focus, the surgery phase is not elaborated on.

Hand therapy: Hand therapy will start with an intake, during which patients will meet a physiotherapist and an occupational therapist. Next appointments will be with physiotherapists, and with occupational therapists when needed. In between, patients have to do some exercises at home. Halfway the trajectory, patients will meet a doctor or specialised therapist (assisting the doctor) for a control meeting. To conclude a treatment, a final control consult will take place as well. Most of the times this controls are taken care of by a specialised therapist assisting the doctor.

Post-treatment phase: When a treatment stops, it does not mean patients have to be fully recovered. Patients can be in their final phase of recovery, without the need of further hand therapeutic sessions, patients can be fully recovered or patients can have learned an adjusted way of using their hand and/or wrist. Another option is that patients do not experience improvement in usage or pain, or that they do but still experience some limitations or pain in their hand and/or wrist, in rest or during use.

Patient journey hand & wrist physiotherapy

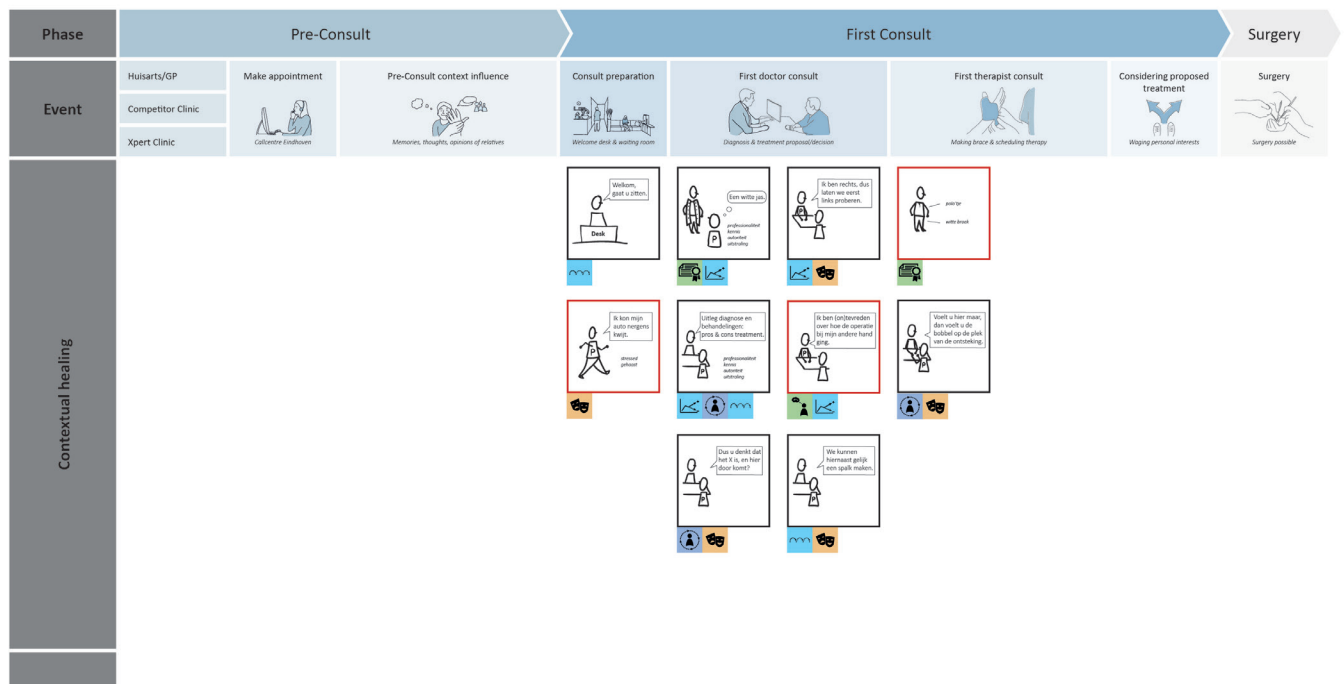


Fig. 3.2: Insights observation clinical practice Xpert Clinic - Handtherapie NL

Observed placebo mechanisms in daily practice

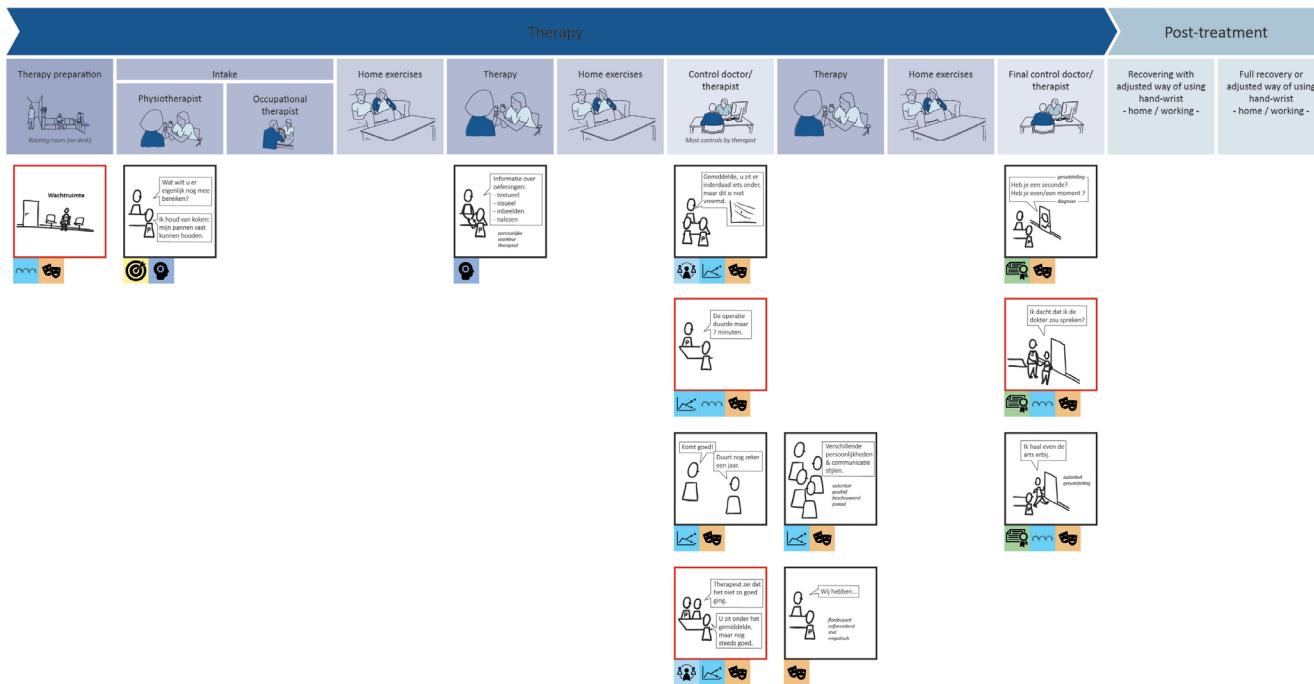
To explore the current use of placebo mechanisms, observations were done during different phases of the patient journey. During the first consult phase, waiting rooms were observed, doctor consults were attended, and first consults with physio and occupational therapists were attended, at two different locations of the Xpert Clinic. During the hand therapy phase, intake meetings of both physio and occupational therapist, regular appointments of both professionals, and control consults with specialised therapists were attended. Observations related to placebo mechanisms were noted and discussed with practitioners during the observation days. Finally, observations were labelled with one or multiple placebo mechanisms.

A quick overview of obtained observations and corresponding placebo mechanisms is visualised in Fig. 3.2. As can be seen in the overview, all placebo mechanisms are used, and in all phases of the patient journey. Furthermore, multiple placebo mechanisms occur and work together,

also influencing each other. Finally, treatment outcome expectancies are an often reoccurring mechanism.

Two main examples of observed placebo mechanisms are mentioned in Fig. 3.3. EFirst, involving patients in the treatment session by discussing possible treatment outcomes, the treatment process, treatment decisions and patient's preferences with doctor or therapist leads to an increased placebo effect through the mechanisms of treatment outcome expectancies, patient involvement and a clear treatment process. Secondly, perceived status of the assisting physiotherapist during control meetings by patients is highly influenced by the appearance and attitude of the therapist. Self-assured, flamboyant and empathic behaviour seem to be attributes that increase the professional symbolic meaning of the physiotherapist as medical professional. An extended list of observations can be found in appendix A1.

Xpert Clinic - Handtherapie NL: treatment expectancies



Possible outcomes of treatment, the process, and patient's preferences are discussed between doctor and patient.



Perceived status of therapists or doctor is raised based on language used by them.

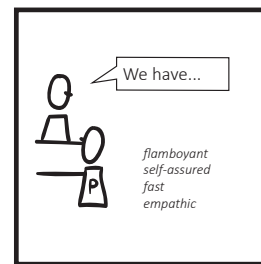


Fig. 3.3: Two examples of observed placebo mechanisms.

Patients' view on positive outcome expectancies

Knowing that the expectations that a patient has about the outcome of a treatment will influence the actual outcome, what is patients' view on how they create their trust in treatment outcome during the care process? Furthermore, which events lead to change of trust?

Method

To answer this questions, patients were interviewed, by reviewing their care trajectory, and by recalling moments that influenced their belief in a positive outcome. Divided over two days, interviews were held with six patients, of which five followed a conservative treatment (focus of the study). One of them went into surgery afterwards. The sixth patient went directly into surgery. Interviews took about ten minutes. Patients were selected by therapists, and interviewed after their appointment. Patients were asked to indicate which phase of the journey they were in, how their journey looked like compared to the one presented, and how their trust in outcome changed over time (Fig. 3.5). To conclude, patients were shown an overview of eight post-its with events related to the mechanisms found in literature (e.g. 'clear treatment trajectory', Fig. 3.4), and patients were asked to indicate which ones they could relate to with respect to their own personal journey. The complete interview guidelines can be found in appendix A2. Transcripts were made, of which statement cards were created. Statement cards were clustered.

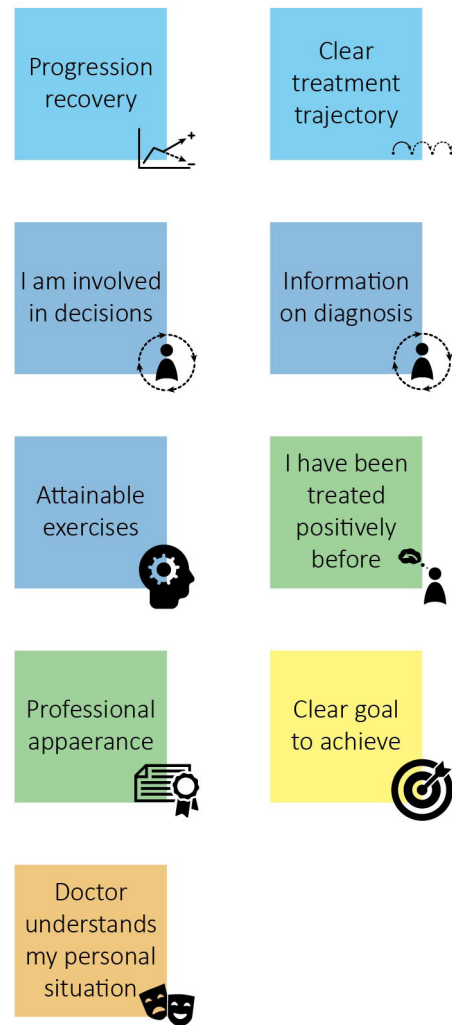


Fig. 3.4: Post-its with events related to placebo mechanisms.

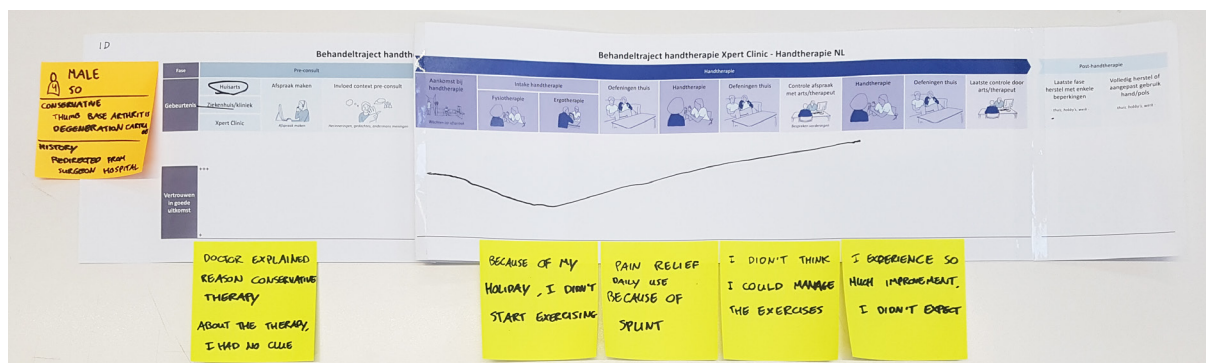


Fig. 3.5: Treatment outcome expectation line in a patient's journey, participant 4.

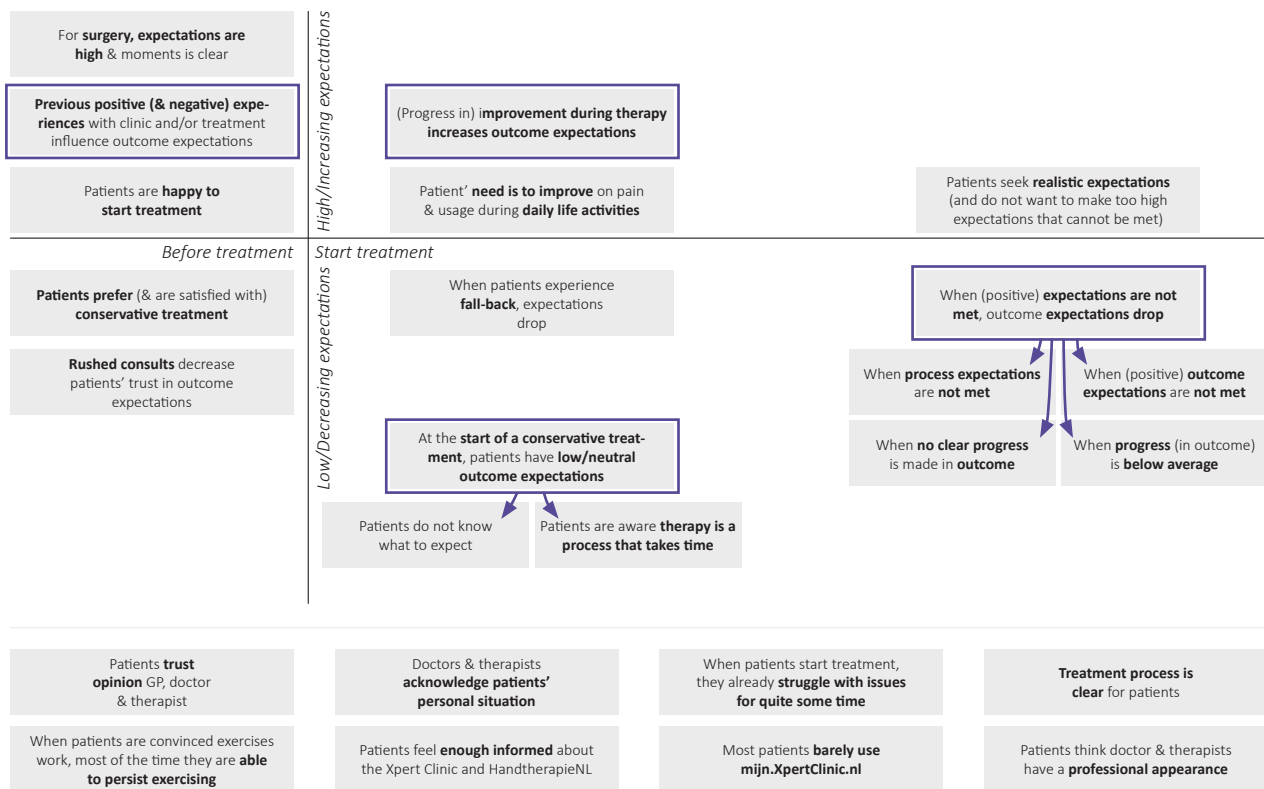


Fig. 3.6: Clustered results of patient interviews.

Results

The clustered results (Fig. 3.6) showed that although in many cases patients prefer conservative treatment, patients start therapy with neutral or low outcome expectations, because patients do not really know what to expect of it, and patients are aware progress will take quite some time. During treatment, patients are positively surprised by the progress they make, boosting outcome expectancies (Fig. 3.7).

Contrary, for surgical treatment, outcome expectancies are high, because moment of impact is clear, and something will happen at that moment that will be likely to resolve their issue. However, when patients' expectancies are not met the weeks post-surgery, patients will be disappointed and outcome expectancies will drop.

Besides differences between surgical and conservative treatment, there are some mechanisms that change expectancies for both. Previous positive and negative encounters with

the same or similar treatment has a major impact on patient' belief. Next, patients already struggle with issues for quite some time, making them eager to start, but also hesitant to expect quick results. Patients seek realistic expectations, because they do not want to get disappointed. In all treatments, positive expectancies that are not met reduce belief: process expectancies, outcome expectancies, no clear progress, progress below average of whole patient population. Finally, patients' need is to improve on pain and usage of their hand/wrist during daily life activities (Fig. 3.8).

For the service at the Xpert Clinic and Handtherapie NL, patients are quite satisfied. Although some consults by doctors seem rushed, lowering expectations, patients trust the opinion of staff, patients feel acknowledged in their personal situation by staff, the treatment process is clear, patients think staff has a professional appearance, and patients feel enough informed about the clinic and process (however, mijn.xpertclinic.nl seemed not to be used often).

Outcome expectations

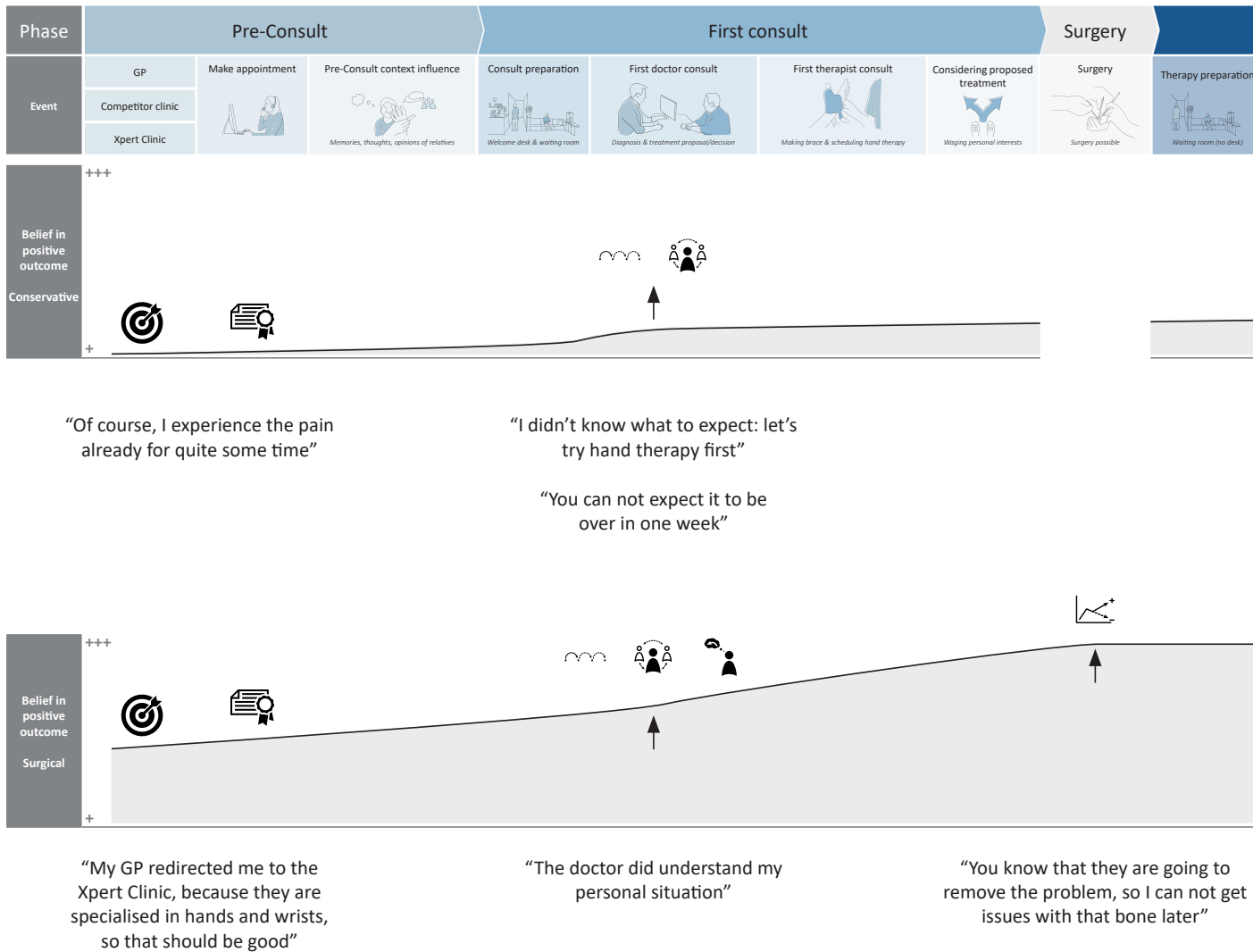
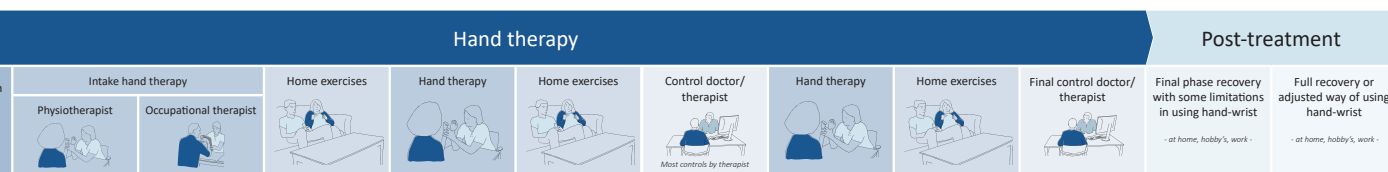


Fig. 3.7: Outcome expectations in a patient journey, overall results.



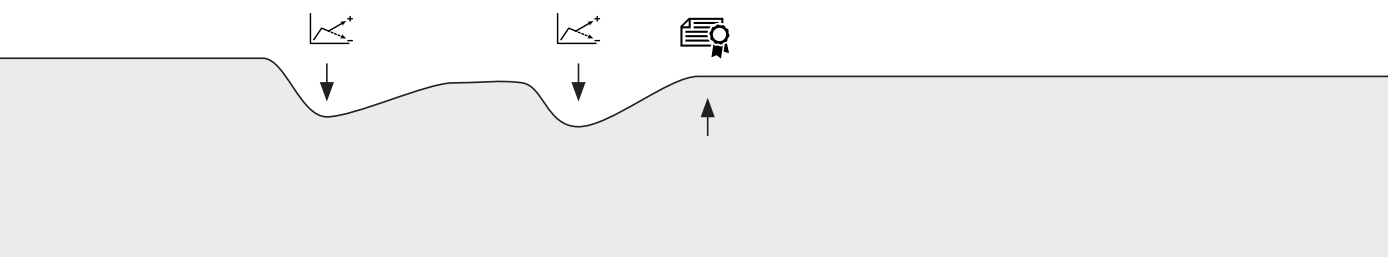
Fig. 3.8: Two examples of statement cards, with patient's quote and interviewer's interpretation.

in a patient journey



"I was positively surprised by the improvements I made in the first week already"

"Every week, during my activities at home I experience less pain, you really see the difference"



"I actually hoped I could already drive my car, but I couldn't"

"My score was below the average line, that was disappointing"

Discussion

Some limitations on outcomes had to be taken into account. Interviews were held with six patients, of which five followed conservative treatment. Due to time difficulties and difficulties in gathering conservative participants (many patient at selected location were surgically treated), the initial goal of eight participants was not achieved. However, within this set of participants, it seemed like saturation of results was achieved, and no major new insights were generated anymore. The goal of the interviews was to gain patients' view on the topic, and to retrieve design input for the ideation phase, and thus the results provide inspiration as starting point to increase patients' belief in their treatment.

The selection of six participants was made by therapists. They made an estimation on the likelihood that a patient wanted to participate, before asking to do so. E.g., if a patient was annoyed, therapist did not ask, assuming patient was not likely willing to participate. Also, not all patients had time to participate. It is likely that most participant were patients with a positive and enthusiastic attitude, this might have influenced the result.

Conclusion: contextual healing in hand therapy

This chapter tried to gain insights in the use of placebo mechanisms in the clinical practice of hand physiotherapy, within the Xpert Clinic and Handtherapie NL. Through observations, discussions with professionals and patient interviews, an overview of occurring placebo mechanisms is given. It is seen that during events, multiple placebo mechanisms work simultaneously, influencing each other as well.

Several placebo mechanisms are used by doctors and therapists, for example by involving patients in diagnosis and treatment decisions. Also, when assisting therapists behave in a more self-assured,

flamboyant and empathic way, they are seen as more skilled professionals, making patients have similar belief in their and their doctor's opinion.

For conservative treatment, patients start with low expectancies, because they know treatment is going to take time. However, when (unexpected) improvement is made during therapy, positive expectancies are boosted. The other way around, when expectancies are too high but not met, expectancies drop. Past experiences with positive or negative outcome influences patients' expectancies.

Chapter's main insights

- Throughout the hand therapy patient journey, several placebo mechanisms are used by doctors and therapists.
- Doctors and therapists involve patients in diagnosis and treatment decisions.
- Patients' belief in a treatment is influenced by the overall appearance of the therapist they are facing.
- An important patients' motivator to belief in their conservative treatment is the experience of improvement in daily life activities after doing hand exercises.

How to make patients' improvements
experienceable during treatment?

Chapter's main goal

- Explore concepts that foster placebo mechanisms

Chapter's methods

- Creative session
- Ideation
- Iteration



4. Design directions for contextual healing

Understanding contextual healing and its placebo mechanisms, and knowing the hand therapeutic context in which they take place, design concepts were made to foster placebo mechanisms.

Ideation brainstorming took place, both individual and in groups. Ideas were brought together into concepts, feedback of designers and medical professionals was gathered, and iterations were made. A visual overview of the ideation process is presented in Fig. 4.1.

Concepts started on making treatment results experienceable, whereas the focus later on shifted towards changing expectations of the treatment itself more upfront. It developed into making the treatment itself experienceable through the use of ritual mechanisms. Final direction was towards improving the way patients experience the therapist as skilled medical professional, a craftsman, by providing open, involving, structured and dedicated interactions between therapist and patient through the use of the therapist's measurement tools.

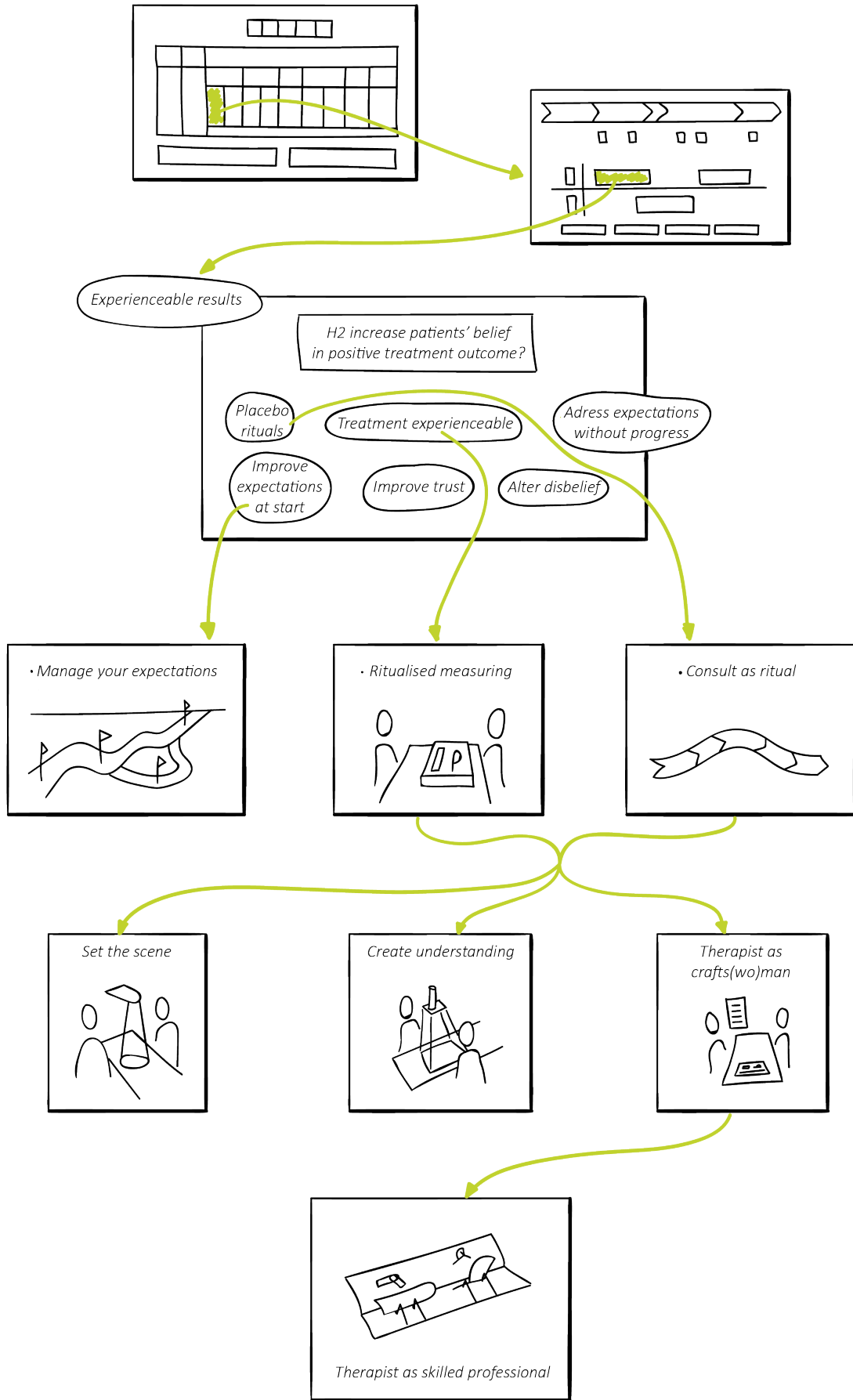


Fig. 4.1: Design iteration process

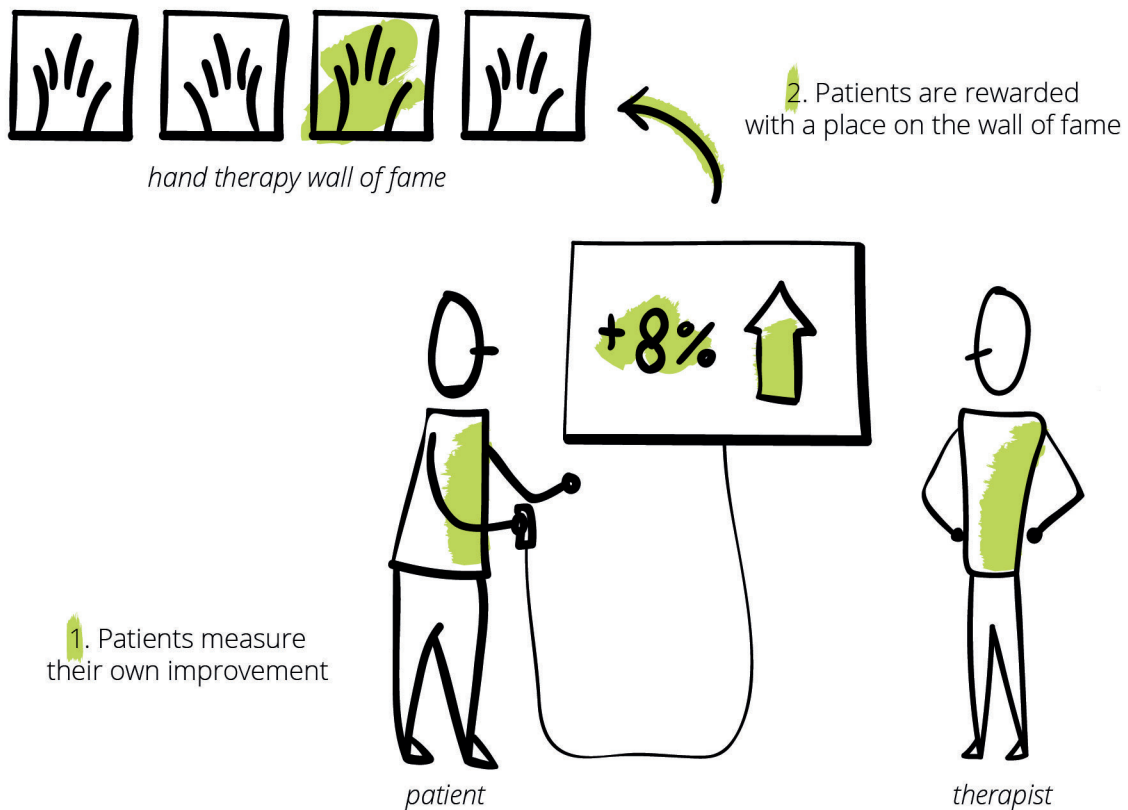


Fig. 4.2: Patient measures his/her own improvement and receives a reward for positive results.

Experienceable results

As seen in previous chapter, when patients, as a result of their hand therapeutic treatment, experience (unexpected) hand improvements during their daily life activities, outcome expectations get a boost. Making patients experience their improvements more intensely, by making outcome experienceable, was the focus of the first cycle of concept ideation. Directions for ideation were *how to use placebo rituals, how to make the treatment experienceable, how to address expectations without progress, how to improve expectations at start, how to improve expectations and trust, and how to alter disbelief*. An elaborate overview of ideation steps can be found in appendix A3. Fig. 4.2 shows an example of how to make results experienceable.

Making results experienceable, by involving patients in an open and transparent measurement process, and by celebrating the results, improving outcome expectancies.

Placebo mechanisms that work:



Because patients get aware of their improvements, and improvements are stressed out by the therapeutic ritual, treatment outcome expectancies are raised.



Patients are involved by measuring improvement themselves.



Sub goals are set and achievements of goals are celebrated.



Patient's past negative experience can be addressed immediately by therapist, or patients can be made aware of previous positive experiences.



Intermediate goals can be set, guiding both therapist and patient.



Patients personal involvement can affect positive emotions.

Focus on expectations

However, altering the expectations beforehand, even before positive outcome is reached, could be a more promising direction. Improving patients' belief in the specific (chosen) treatment, by making not the results, but the treatment itself experienceable was the focus of the second cycle

of concept ideation. Iterations on managing expectations, on the use of placebo rituals and on making the treatment itself experienceable were part of this second cycle.

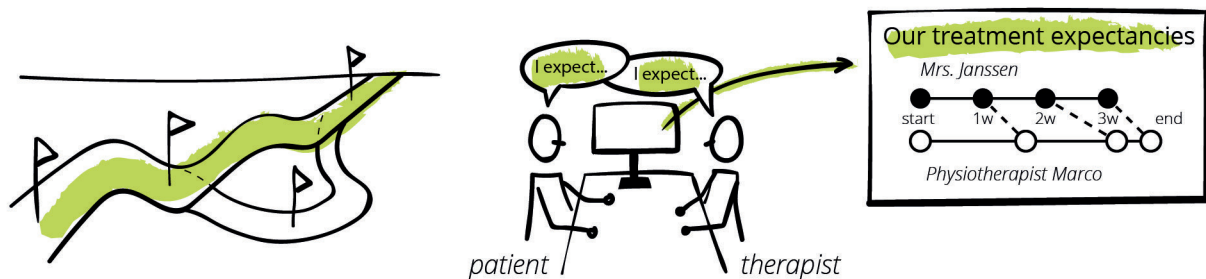


Fig. 4.3: Patient and therapist discuss and align their expectancies with each other.

Manage your expectations

Make expectations discussable by creating a tool for therapist and patient to discuss and align their expectations (Fig. 4.3). Creating a clear process overview and alter expectations when things happen during treatment.

Making expectations explicit, offers therapists the possibility to alter them in a more positive way.

Placebo mechanisms that work:



Treatment outcome expectancies can be raised (or lowered) to a positive realistic level, increasing expectancies (or decreasing possibilities for future negative past experiences).



Treatment process becomes clear for patient, what to expect and when.



Patient feels involved in the treatment process.



Patient's past negative experience can be addressed immediately by therapist, or patients can be made aware of previous positive experiences.



Intermediate goals can be set, guiding both therapist and patient.



Patients personal involvement can affect positive emotions.

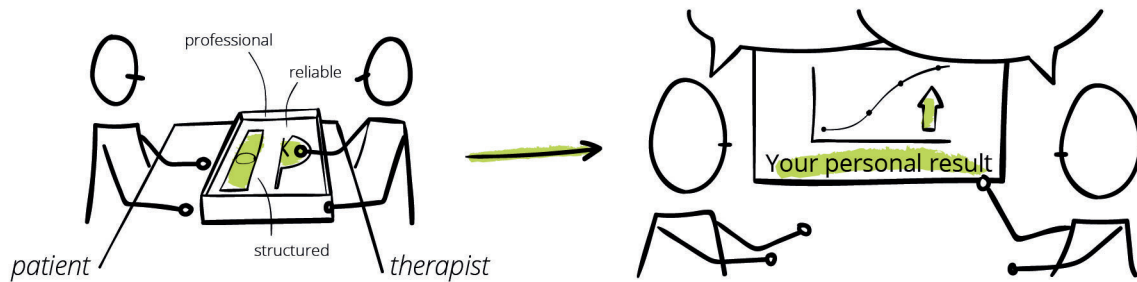


Fig. 4.4: Measurements are taken by the therapist in a ritual that translates the outcome to understandable matters for the patient.

Ritualised measuring

Making a ritual of the therapist measuring improvements, and creating clear communication of improvements between therapist and patient (Fig. 4.4).

Stressing and celebrating improvements, creating increased treatment outcome expectancies.

Placebo mechanisms that work:



Celebrating success, increasing treatment outcome expectancies.



Open treatment, no vague numbers, but clear for patient what is happening and what the outcomes mean.



Patient involvement, clear measurements and outcomes.



Possibility to include goals for next measurement.

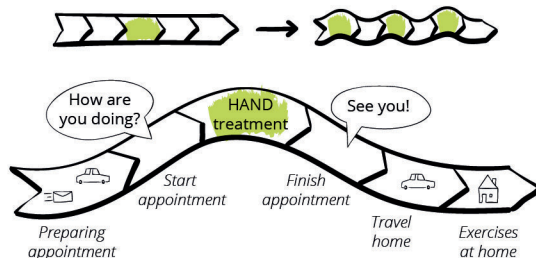


Fig. 4.5: Seeing the appointment with the therapist as a ritual, building up towards the main moment: the actual physical treatment of the hand. Stressing this moment of touching for diagnosis or exercising as treatment by focussed light.

Consult as ritual

Instead of seeing a physiotherapy appointment as a linear, one-level process, a closer look at the events and importance of different parts of the appointment shows that it consists of several levels of importance. For patients, it can be expected that the actual treatment of the hand is most important. However, for therapists, the first part where diagnostics are discussed, is most important to alter the treatment plan based on it. This concepts focus on making the shift to the touching of/working on the hand as major part of the appointment (Fig. 4.5).

HAND treatment itself becomes the most important part of the therapist appointment, increasing treatment outcome expectancy.

Placebo mechanisms that work:



Focus on hand, rather than smooth talk/diagnosis, increasing treatment outcome expectancies.



Rather than personal involvement, patients hand feels involved.



Cultural importance of working on the HAND is symbolically improved.



Rituals have important emotional meaning for patients' belief.

Treatment experienceable through ritual

Making the treatment experienceable through envisioning it as a ritual, seemed a promising way to increase patients' belief in positive outcomes. Three concepts were made by introducing a ritual, or adding ritual elements. Making therapists leading the ritual as professional, and making

patients involved in it, can be a way to increase outcome expectancies. Feedback was obtained by discussing the concepts with researchers and therapists. An elaborate description of the development of the concepts can be found in appendix A4.

Set the scene



The therapist adjusts the light angle with a circular swiping gesture, 'clearing' the table for the patient's hand.



By focussing the light in the room on the patient's hand, the therapist creates a moment where the patient feels that it is his/her hand that is being treated.



Fig. 4.6: Setting the scene concept.

Set the scene

Focussing on touching and treating the hand, rather than focussing on the diagnostic talks at the start of a hand therapy session, that is what this concept provides. By enlightening the table where the patient's hand can rest, the therapist sets the scene. The focus shifts from talking with each other towards treating the hand/wrist, and sets extra attention to the part of the body that is treated (Fig. 4.6).

Ritualising the actual hand touching and treating moment, by setting the scene through a focussed light on the patient's hand.

Placebo mechanisms that work:



Focus on hand and treatment, increasing outcome expectancies.



Involving patient's hand to the treatment.



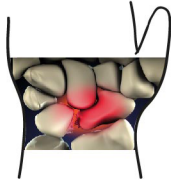
Cultural symbolic meaning of involvement of hand.



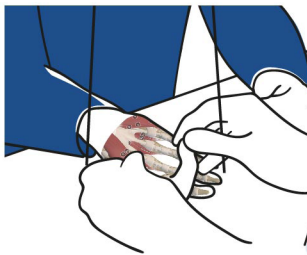
Emotional response on ritual.



Options to extend the concept, by adding AR projection through patient's phone, allowing gamification of exercises at home.



Showing affected area and muscles/tendons to train with specific exercises.



By projecting on the patient's hand, the patient really feels it is his/her own hand that is being treated.

Create understanding

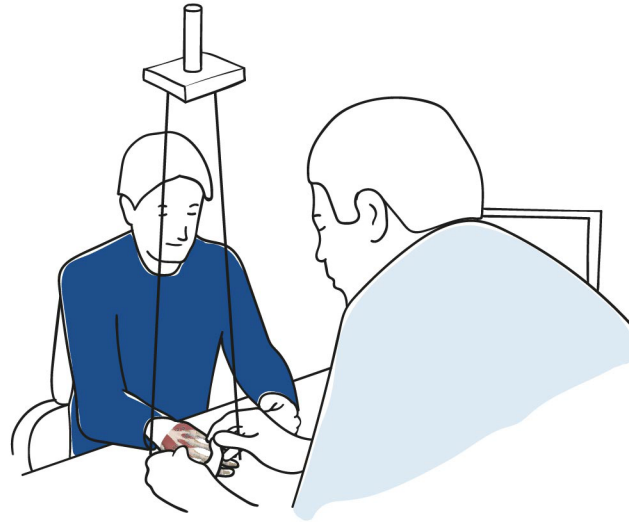


Fig. 4.7: Create understanding concept.

Create understanding

To create belief that the exercises that the therapist prescribes lead to positive outcomes, this concept is developed. By use of this concept (Fig. 4.7), the therapist can explain the reasoning behind the disease, and the therapist can explain how the exercises will contribute to improvement. Besides therapists being perceived as well-educated by patients, projecting on the patient's hand creates extra awareness that it is the patient's own body that is treated. Patients relate to their own body, a better understanding of the illness is created, and a better understanding of reasoning behind the exercises. With augmented reality, patients can 'project' themselves with their phone at home, opening possibilities for gamification of home exercises.

Creating reasoning for treatment and diagnosis by projecting on the patient's hand.

Placebo mechanisms that work:



Creating reasoning for treatment, increasing treatment outcome expectancies.



Involvement patient in diagnosis and chosen treatment.



Creating reasoning for improving on skills to keep on exercising.



Social support, by making patients able to clearly explain their disease and exercises to others in their social context.

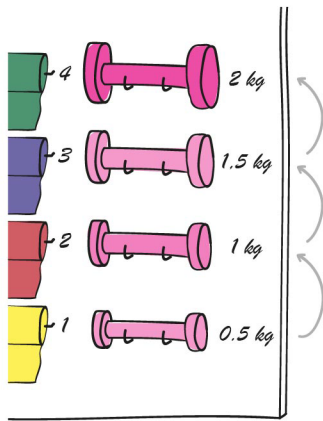


Increased status of therapist, because they are experienced more skilled by being able to explain their reasoning. Less black box, more open treatment.

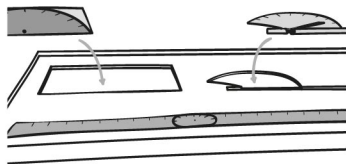


Concrete physical goals.

Therapist as crafts(wo)man



Hierarchy in the openly displayed exercise tools provides possibilities for celebrating level progress.



Measurement tools are professionally displayed and have dedicated spots, stimulating structured therapist's behaviour.

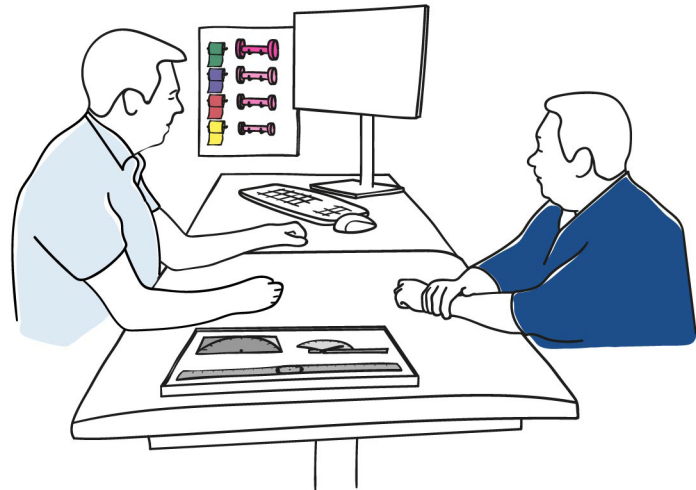


Fig. 4.8: Therapist as crafts(wo)man concept.

Therapist as crafts(wo)man

The third concept pictures the therapist as a craftsman: skilled and professional. Currently, exercise rooms in hand therapy buildings are organised, and tools are openly displayed (Fig. 4.8). However, session rooms of therapists are white and clean, and tools are either stored messy in a corner of the table or stored and hidden in the drawer of a cupboard. Therapist envision themselves as craftsman, as is symbolised by paintings on the walls and by their slogan, 'here is care provided by specialists in the field of the hand, wrist, elbow and shoulder.' However, at the work space of other specialists, like surgeons or opticians, tools and equipment are stored in an open and structured manner. Thereby, the tools strengthen patient's vision on the specialists as skilled professionals. This concept aims to create this crafts(wo)manship in the session room of hand therapists. Additional, display of exercise tools creates possibilities for indicating level improvements, hence stressing positive results.

Placebo mechanisms that work:



Possibility to discuss improvements, increasing treatment outcome expectancies.



Increased professional way of behaviour of therapists, increasing patients' experienced belief of therapist in treatment.



Increased cultural symbolic meaning of measurement tools and measuring.



Possibility to include (sub)goals.

Open display of exercise and measurement tools symbolises crafts(wo)manship, and measurements are taken in an open and structured, professional way, stressing positive results.




			
<i>Desirability: expected placebo effect</i>	**	***	**
<i>Viability: usage by therapists</i>	*	**	***
<i>Feasibility: complexity and costs</i>	**	*	***

Fig. 4.9: Assessment of the three concepts.

Concept decision

The three concepts were assessed on three different points related to desirability, viability and feasibility (Fig. 4.9). Desirability, in terms of the expected increase of placebo effect. Viability, in terms of expected usage by therapists. Feasibility, in terms of complexity and costs of the concepts. Assessment was based on concept characteristics and on discussions with therapists and researchers.

The concept **Set the scene** can have a strong placebo effect in the sense that it literally adds a ritual to the treatment session, strongly focussing on emotional mechanisms. However, effect really depends on the effort that the therapist puts in easing the light to set the scene. Because it adds an action that has no specific healing power, therapists are likely to neglect this additional action and the question remains whether they would use the concept. Complexity of the concept is neither high or low.

The concept **Create understanding** can directly influence the belief of patients in the benefits of their treatment, because it creates strong reasoning for it. Therapists indicate that they would like such devices, although therapists have their own personal way of explaining the treatment to the patients, so it might not be preferred by all therapists. Complexity and expected costs of this concept are high.

The third concept, **Therapist as crafts(wo)man**, is the concept that is chosen to continue with. Increasing the professional appearance and behaviour of therapists is believed to have positive effect on patients' treatment outcome expectancies. Usage by therapists requires low effort, and therapists could imagine themselves using the concept. Compared to the other concepts, complexity of the concept is low.

Iterations on the third concept were made, and feedback on the use of the different designs was given by three therapists (appendix A5). Several prototypes were made. A final design was developed, that will be presented in the next chapter.

Chapter's main insights

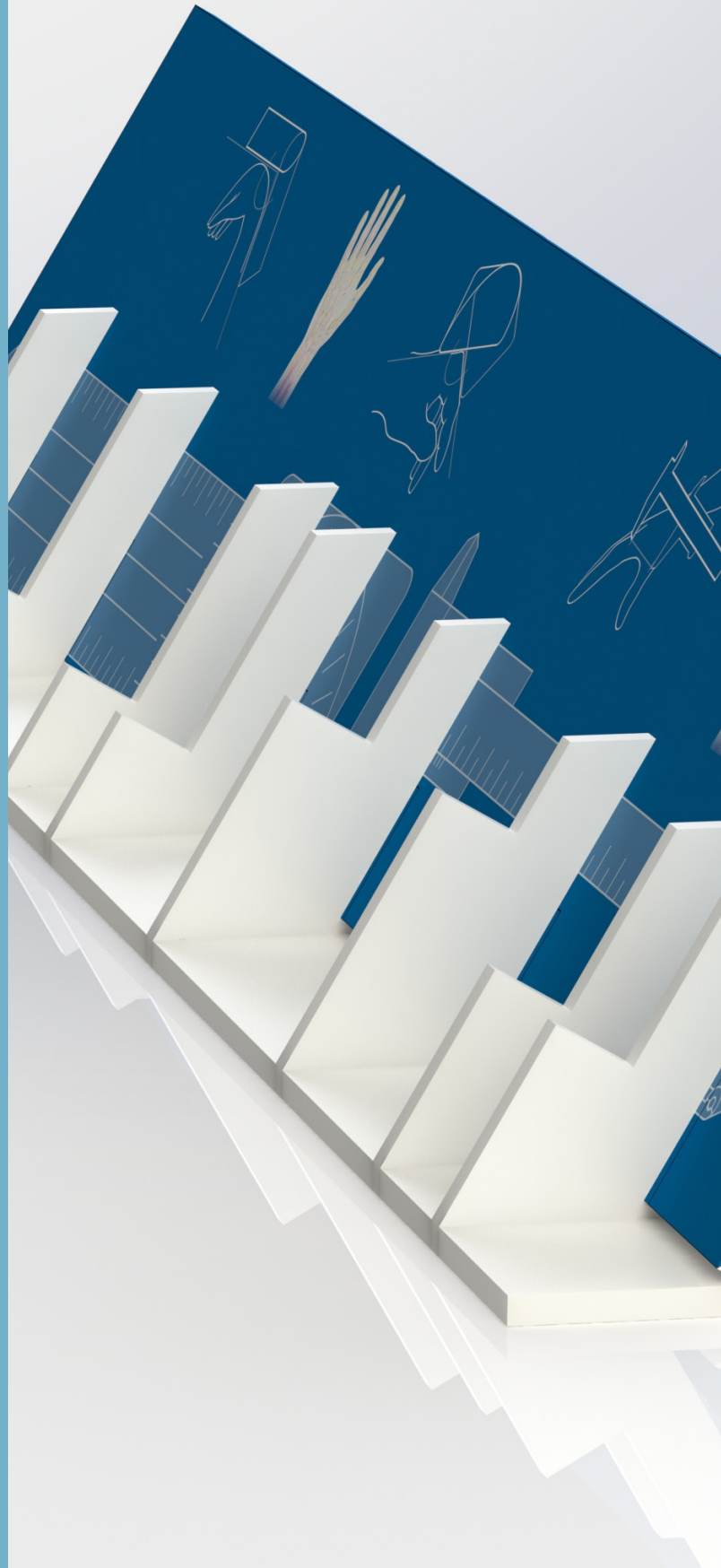
- To foster placebo mechanisms, through several design iteration steps, a concept is chosen that increases the status of the physiotherapist as a skilled medical professional, with the aim of increasing patients' belief in positive outcome of the treatment provided by the therapist.

Chapter's main goal

- A final design is proposed that fosters placebo mechanisms by increasing the way patients experience the therapist as a skilled medical professional.

Chapter's methods

- Mood board
- Prototyping



5. Specialised measuring, a tool organiser for professional hand therapists

This chapter presents a final design of specialised measuring, a tool organiser supporting hand therapist in professional behaviour and appearance. The chapter describes the working placebo mechanisms and the interactions between patient, hand therapist and the design. It ends with the proposed appearance. Insights from previous chapters are used to develop the final design.

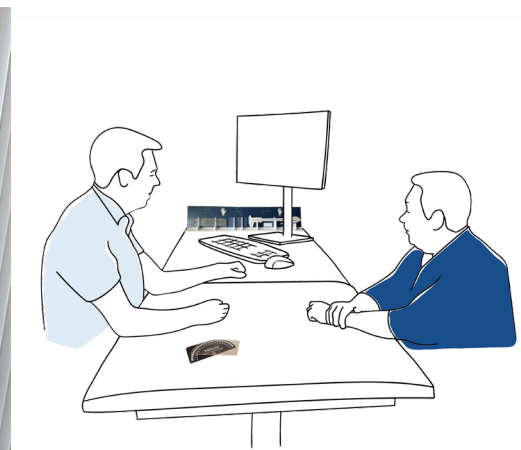


Fig. 5.1: Final design.

The specialised measuring tool organiser (Fig. 5.1) brings the regular measurement tools used by hand therapists to a professional level, the one of hand therapeutic specialists. This professionalised way of using the tools is experienced by both therapists and patients.

The way the design displays the tools on dedicated spots, stimulates hand therapists to handle the tools with care, in a systematic and precise matter.

For the patient, being visually apparent in an open way, brings the tools, the hand therapist and performed therapeutic measurements to a high level of importance in the hand therapy, and makes the patient more involved in the performed therapeutic measurement ritual. As a result, measurement results gain importance, and so does improvement.

Use of placebo mechanisms:



The status of the therapist and the measurement tools is increased to a more professional one, the one of a medical specialist.



The process becomes more clear by means of the visuals on how to use the measurement tools, and by 'open' treatment.



As a result, the measurement itself feels more professional: measurement outcomes are given more importance, improvement gains more importance, and outcome expectancies increase.



Displaying the items in an open way, patients feel more involved to the treatment.

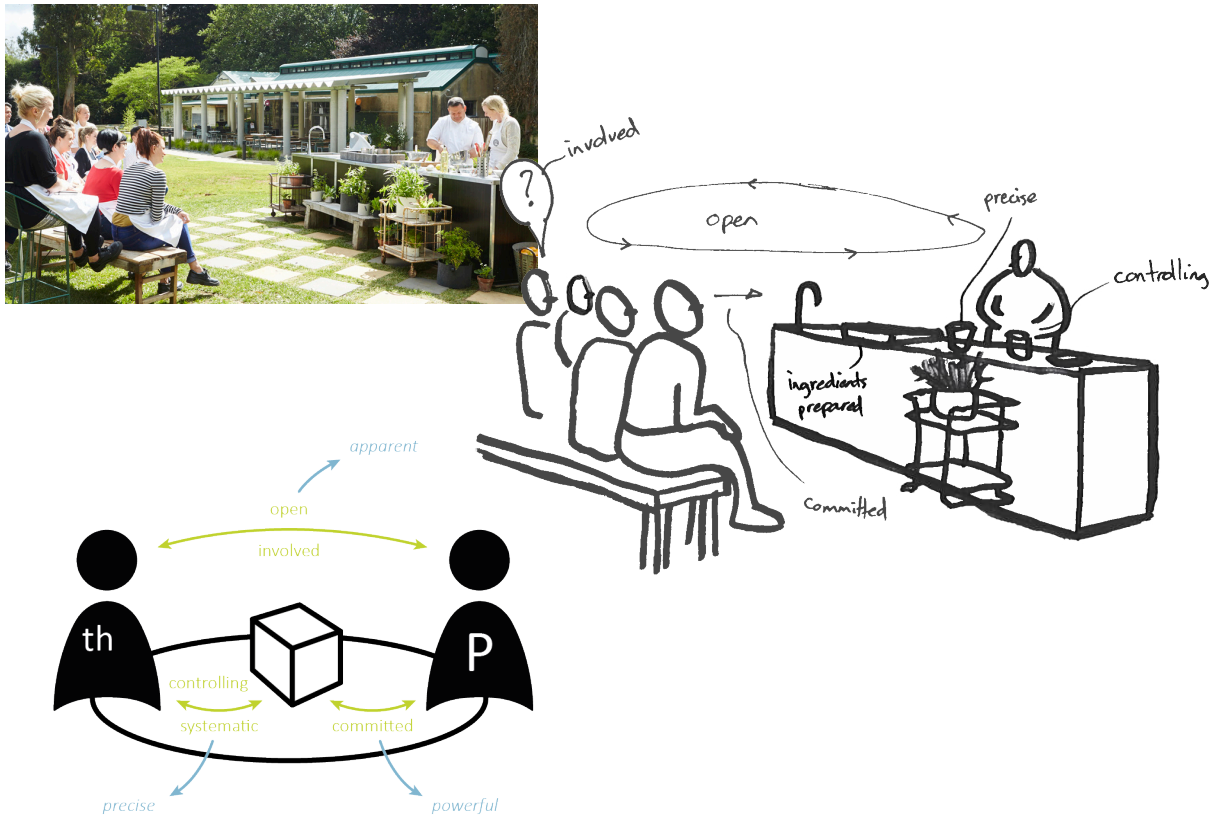


Fig. 5.2: Interaction vision with interaction characteristics of the final design.

For the characteristics of interactions and its qualities, the analogy of a cooking masterclass was used as inspiration (Fig. 5.2). In the analogy, in an open setting, cook and participants share knowledge. The cook is controlling the recipe, and is handling the ingredients in a systematic and precise matter. Participants are committed towards the event of measuring, in a powerful way.

Using this analogy in the therapist room, the organiser where the measurement equipment is presented, facilitates open, apparent and involved interactions between therapist and patient. Handling the equipment by therapist is controlling, systematic and precise. The patient is committed towards the event of measuring, in a powerful way.

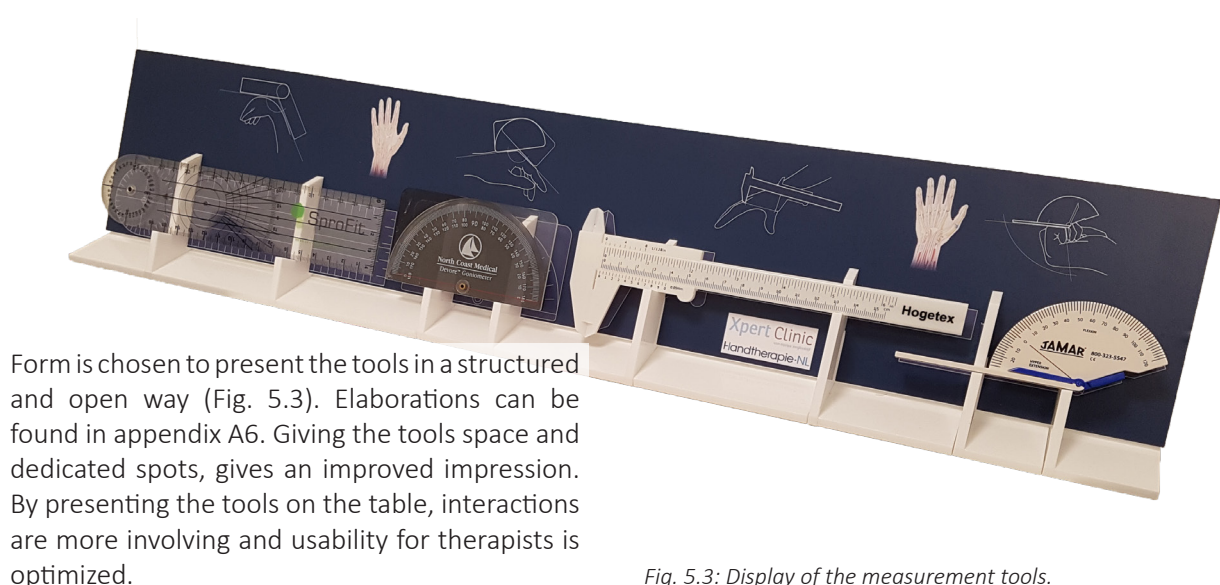


Fig. 5.3: Display of the measurement tools.

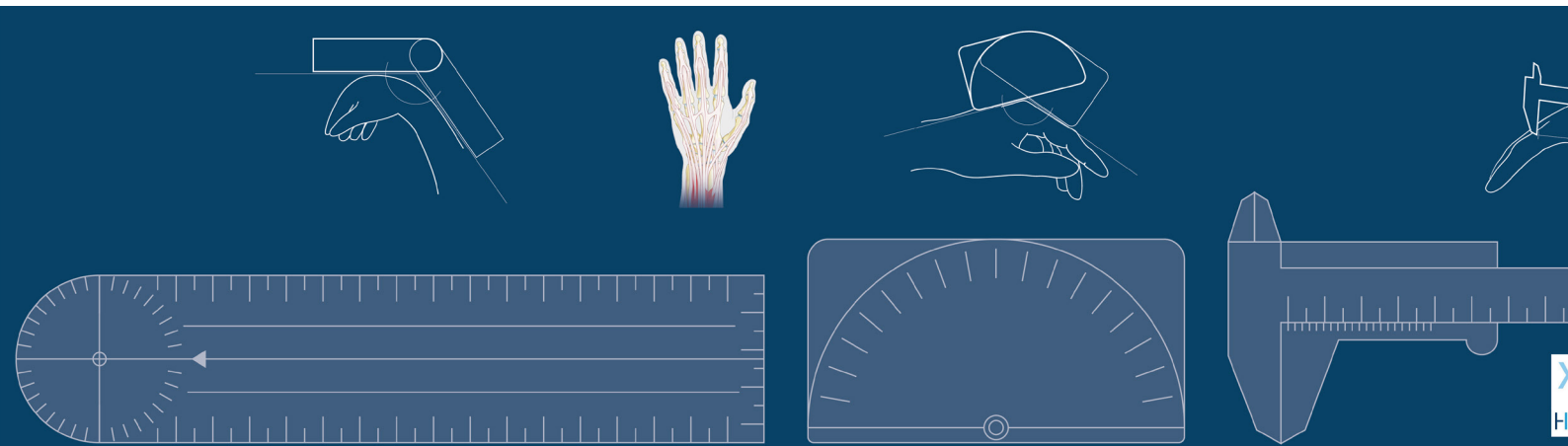


Fig. 5.4: Final visual design

It is not only the open and structured way that the tools are presented that facilitates a professional and medical appearance. The visualisations, colours and materials were chosen to reflect a medical and professional impression. A mood board of the intended design is presented in Fig. 5.5. Visualisations (Fig. 5.4) were chosen to present medical context to the measurement tools, to visualise the tools not as regular rulers, but as medical equipment. Colour was chosen to represent both a medical context and Handtherapie NL colours. A colour study can be found in appendix A6. Clean white and Handtherapie NL dark blue were selected, representing a medical professional hand therapeutic context.

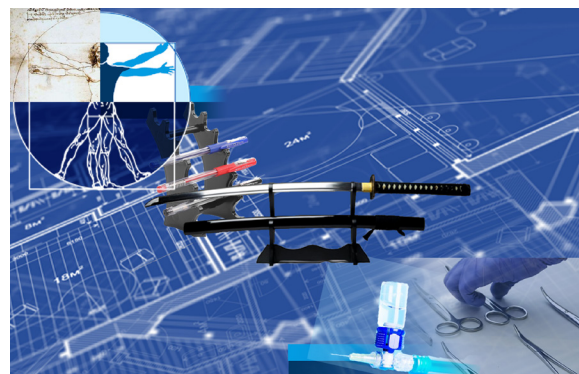
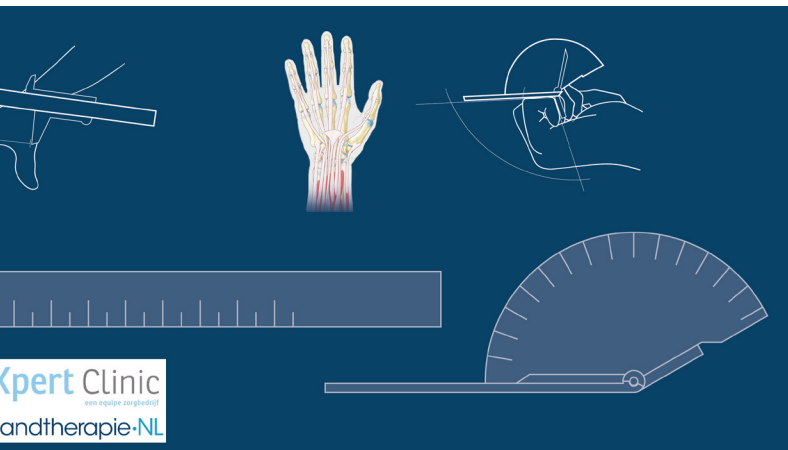


Fig. 5.5: Final design mood board.



Chapter's main insights

- Specialised measuring: the tool organiser for hand therapists presented in this chapter increases the belief of patients in the therapist as skilled professional. In the therapist's room, this organiser presents the measurement tools in an open, professional way to the patient. It motivates the therapist to measure with a professional and structured attitude. By providing context to equipment, the tools are uplifted towards medical equipment. Being involved in a session with a skilled professional, placebo effect on patients is increased.

Chapter's main goal

- Validating the final design

Chapter's main methods

- User test in clinical practice
- Observations
- Interviews with professionals



6. Validating the design

The final design decisions presented in previous chapter were based on iterative research and design activities. However, the question remained whether the design had the desired positive influence on the placebo effect, and whether the design decisions on interactions met the interactions between therapist, patient and

product in practice. This chapter describes the results of a final user test in clinical practice, and assesses the final design based on conclusions from the test. Finally, recommendations for future improvement of the design will be proposed.



Fig. 6.1: For the validation test, a prototype was placed in clinical context and used during hand therapy sessions.

Validating the design

The design goal was to improve expectancies of patients on the outcomes of hand therapy, in such a way that placebo effect is used the most. Within this graduation project, measuring the direct effect of increased belief that patients have in their hand treatment is not in reach. However, it was possible to assess this placebo effect through assessing the placebo mechanisms that the design was intended to act on. Questions to answer the design goal were *is the attitude of patients towards the treatment changed by use of the design*, *is the attitude of patients towards the therapist changed by use of the design*, and *is the attitude of the therapist changed by use of the design?*

To assess the change of attitude, questions regarding the characteristics and qualities of interactions were set. *Are interactions involving and open to the patient, does the design stimulates structured and dedicated therapist's behaviour, and are patients committed towards the measuring ritual?* Finally, to ensure use of the design in future clinical practice, *how do therapists experience the use of the design, in terms of usability and viability?*

Main research question:

Is the belief that patients have in positive outcomes of their hand treatment increased by use of the design?

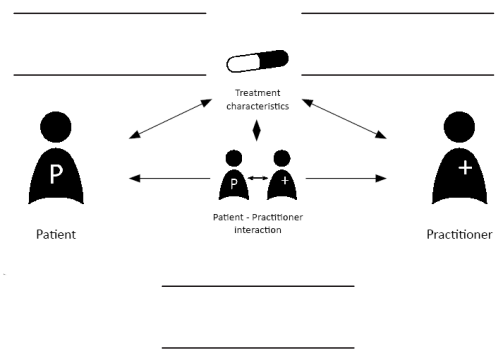


Fig. 6.2: Different session rooms have different lay-outs. Above a session room with hand therapist from patient's viewpoint.

Method

Evaluation of the design, to answer the research questions, was done by use of a final user test in hand therapeutic clinical practice. A prototype was made and placed in the room of three hand physiotherapists during appointments with patients (Fig. 6.1 and Fig. 6.2). Observations were made on the interactions that took place, during appointments that involved hand measuring of patients. After each appointment, interactions were assessed by the observer (Fig. 6.3). At the end of the day, therapists were asked to fill in a Likert-scale questionnaire (appendix A7) and interaction assessment as starting point of an interview about his/her experiences during the appointments. Questionnaire was set up to answer the research questions, and involved several topics. The prototype was tested by three therapists during a total of 6 patient appointments.

Describe the main characteristics of interactions:



Rate the intended characteristics of interactions and interaction qualities:

Closed ————— Open

Separated ————— Involved

Chaotic ————— Systematic

Approximate ————— Precise

Bored ————— Committed

Weak ————— Powerful

Clumsy ————— Professional

Not useful ————— Useful

Fig. 6.3: Observer interactions assessment cards.

Rate the intended characteristics of interactions and interaction qualities:

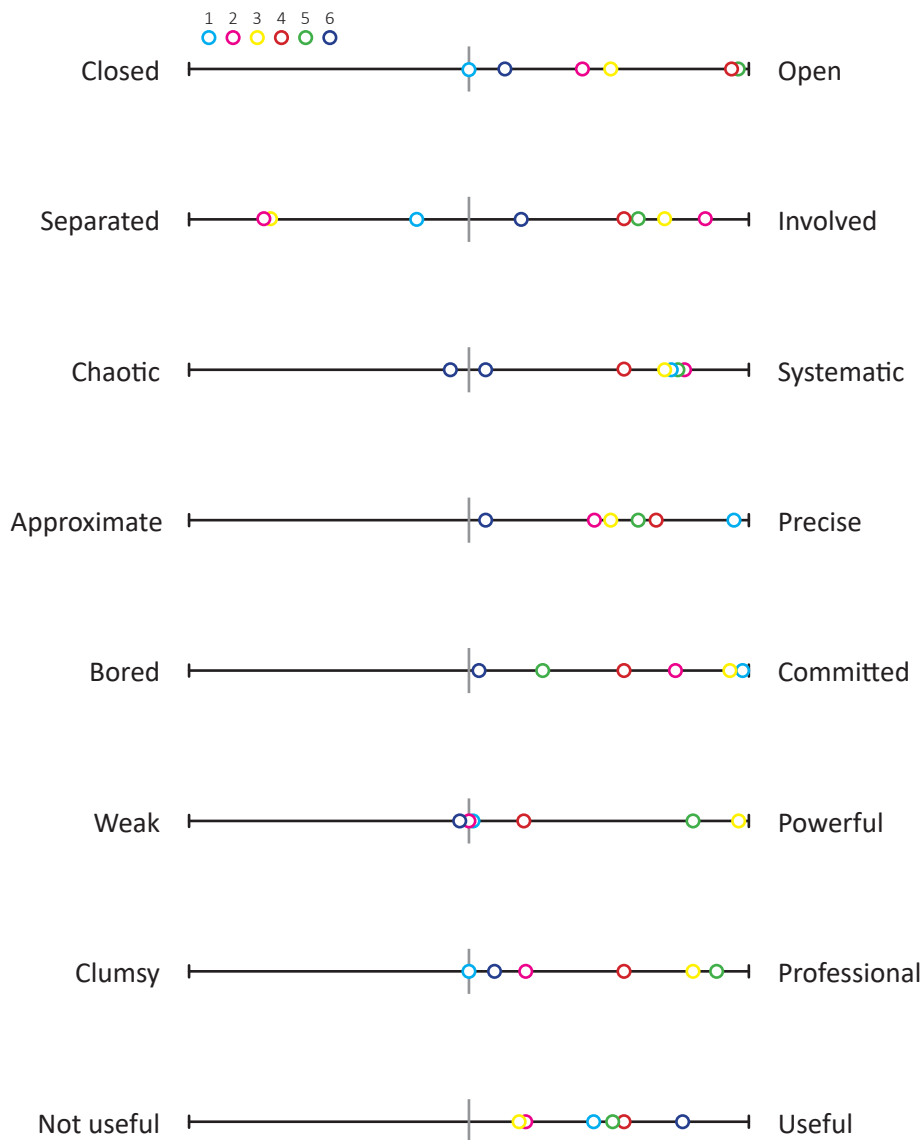


Fig. 6.4: Observational scores of intended interactions.

Results

Observational scores of intended interactions are visualised in Fig. 6.4. Full observer assessment cards of interactions can be found in appendix A7. Interactions with the prototype were open to some extent. Where some interactions are involved, others were more separated. Therapists' behaviour was systematic and precise. Patients were committed towards the measuring ritual, and committed to the prototype to some extent. Appearance of the prototype was professional, and patients seemed not to notice that it was a prototype that was being tested. The prototype seemed useful for altering interactions. Three

out of six patients, two during regular visits, one during intake, noted the design and were fascinated and attracted towards it. Other three patients accepted it in a natural way.

Therapists assessed the interactions as open, clear, professional, quick, handy and ordered (Fig. 6.5). They noticed that if patients reacted to the prototype, they reacted in a positive, fascinated way. Either while therapists were busy on their computer, or when they were getting a measurement tool from the organiser, patient's view were attracted.

Open	Quick
Clear	Handy
Professional	Ordered

Fig. 6.5: Assessment of interactions by hand therapists.

During measuring, the prototype did not add to the involvement of the patient. Patients are involved, because for measuring both therapist and patient had to rise, and standing close to each other created involvement, but this was not caused by the prototype. During measuring itself, the device did not add anything.

To some extent, the device supported the therapists as professional, and gave them structure. Two out of three therapists certainly thought the design adds to their appearance as professional skilled hand therapist. All therapists thought the design is an added value to the session room.

Therapists assessed the design easy to use, and they all thought they would keep using it over a longer period of time.

Additional remarks made were mainly on usability. It was not practical to place the prototype at the intended place on the table, because there was no space and it would have been hidden behind the computer screen. Therefore, the prototype was placed on a separate smaller cupboard. This cupboard was placed close to the therapist's table, but was not located at the exact same spot in every room. For usability, recommendations were made to either change the size so that it would fit on the cupboard, or to hang the device on the wall next to the table, providing easier access.

Conclusion

Did the results indicate that the attitude of patients and therapists towards each other and towards the treatment positively changed? While it is not sure that the attitude of the patient towards the treatment is changed, it can be said that the appearance of the design impressed patients, by attracting their attention in a fascinated way. Being part of the treatment context, the design might indeed contribute to an increased status of the hand therapeutic treatment.

Although patients were attracted to the design, the placement in the therapy room did not fully provide open and involving interactions. Therefore, it can not be said that the design changed the attitude of the patient towards the therapist as skilled professional. While measuring, patients were involved and open towards the therapists, but it is not certain that the design had any influence on it.

It is seen that the attitude and behaviour of the therapist changed. With low effort, the therapists were guided by the design to behave in a dedicated, structured and precise way, with respect to the measurement tools. It can be concluded, that the design influences therapist's behaviour.

In terms of usability, it required low effort to use the design, therapists indicated that they would use it for a longer period of time as well, and therapists would like to use it in their regular therapeutic work.

Concluding, there were some indications that this design could increase patient's belief in a treatment, by a professional appearance of the design, and an organised, structured attitude of the therapist. The design might therefore increase patient's belief in the therapist as skilled professional, thereby fostering placebo mechanisms, ultimately leading to an increased placebo effect..

Recommendations

Improvement of the design should focus on increased usability in terms of placement in the room, and increased involvement of the patient. The design should be either be made suitable to fit on the cupboard, or suitable to hang at the wall. The wall might be preferred, because a fixed position close to therapy table offers easy access for therapist and is open to the patient. In any case, the design should be well visible and close by to the patient, to enable patient's involvement.

When improvements are made, a test could be done, equipping in one location of Handtherapie NL or the Xpert Clinic, every hand therapy room with the design. It would be interesting to see whether this will result in improved expectancies that patients fill in on their treatment questionnaires.

Chapter's main insights

- Results indicate that there might be an increased patient's belief in the hand treatment, by an increased professional appearance and behaviour of the hand therapist and room he/she is working in.
- Patients are attracted towards the design in a fascinated way.
- Direct involvement of the patient in the design could be improved.
- Therapists interact in a professional way with the design: in a systematic and precise way.
- Therapists assess the design as useful, and would like to use it for a longer period of time.
- Improvements can be made on placement in the therapy room, the wall right next to the table might be a promising place.

7. Final words

Although testing the direct effect of design interventions on the placebo effect is hard, this report presents an overview of placebo mechanisms that are known to enhance the placebo effect. Furthermore, the report shows that placebo mechanisms are apparent all over the care journey, and that there are many possible ways to intervene. Besides effecting the placebo effect, patient experience can be influenced too, and these have not to be mutually exclusive. It is worth looking for elements that increase on both sides.

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A handwritten signature in black ink, consisting of a stylized 'A' and 'K' with a small circle at the end of the 'A'.

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