Insights

Brainstorm session

Design

User test

Interview

Current care model

4 design directions

Reminiscence

1 main design direction

A step back

Person-centred care

Current care model

Step 0: The basics	Take your time	Stay calm
	Do not force anything	Look at your own behaviour
Step 1: Communicate	Explain every step	Persuade
	Mirror your behaviour	Comfort
Step 2: Distract	Use humour	Use music
	Use pictures	Make it into a game
Step 3: Postpone	Try it again later, when the mood of the client changed	
Undesired behaviour	Insist on continuing	
	No clue what to do, just accept it will never work	

What is it?

The current care model is an overview of the approach carers currently have for taking care of someone with dementia. It is a method that helps to overcome problematic behaviour. The method contains of 4 steps.

What is the goal?

Since the method describes the current method of caregivers during the care, it can serve as a basis for the design of a product that supports the carer in doing what they currently do. The last step of the method is 'skipping the care and waiting until a later moment'. This led to the design goal: The product should help a carer avoid skipping the care to a later moment.

Why does it (not) work?

The model is limited to the approach of the carer. It does not take the attitude and preferences of the person with dementia they are caring for into account. This can be beneficial, since it is easier to instruct the carer and since the carers are way more alike compared to the person with dementia. On the other hand, the approach should be more dependent on the person with dementia than the caregiver.

What is the next step?

The model can serve as a basis for the first prototype (card 3/24)
Further explanation: page XX and page XX.

Brainstorm with colleagues

Brainstorm with colleagues

Brainstorm person-centred care

Brainstorm implementation

What is it?

A brainstorm was conducted with the employees of Dental Robotics. The setup of the session was fairly simple and consisted of a creative icebreaker and the group passing technique. The session was closed by a short presentation of every participant about their favourite idea. The How2's on the sheets were based on the different steps and subcategories of the current care model (e.g. how to explain step by step what you are doing).

What is the goal?

The goal of the brainstorm session was to find a form for the first prototype. The results of the session can be combined to get a complete solution that helps to support the carer to fulfil the task.

Why does it (not) work?

The brainstorm was a bit too short to come up with many out-of-the-box ideas. Nevertheless, the results helped to get an understanding of the solution space.

What is the next step?

Some of the results of the brainstorm session will be combined to use in the first prototype.

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3/24

Guiding binder

Guiding binder

The Puzzle

The App

What is it?

The guiding binder is the design of a prototype that can be used during the toothbrushing with the Dental Robotics toothbrush. The design consists of a binder, filled with A5 sheets with illustrations for every step of the process. The illustrations are accompanied by an explanation of what the carer should do and / or explain to the person with dementia. Between every step, the carer asked to take a deep breath. This is illustrated by a big blue ball, supported by text.

What is the goal?

The goal of the design is to support the carer to stay calm and to make sure the carer keeps explaining the steps of the toothbrushing process to their client. The second can also help to increase the calmness of the carer. When the process is clear and when a carer can look at it when in doubt.

Firstly, the goal was to help the carer explain the process to the person with dementia by guiding the carer through the brushing. They are asked to talk out loud and via visuals and text, the necessary steps are explained. This helps to make sure both the person with dementia and the carer know what is asked from them. This will de carer more confidence and will help to avoid unexpected actions for the person with dementia. Secondly, the goal of the intervention was to help the carer to stay calm.

Why does it (not) work?

The design is a prototype. In order for it to work, someone needs to flip the pages at the right time. This requires someone that understands the steps of the tooth brushing process.

What is the next step?

The prototype needs to be tested in the context to see if it meets the requirements to fulfil the design goal.

Test 'Guiding binder'

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Guiding binder

What is it?

The prototype of the guiding binder needs to be tested in the context. This is done at Zorgboerderij Buitengewoon in Oude Leede by one carer and two clients. After the brushing, both the carer and the person with dementia were asked for feedback. For the person with dementia the evaluation was about the basic experience with the toothbrush (e.g. did it taste well or was it a pleasant experience) and for the carer the evaluation was more focussed on the effectiveness of and the experience with the intervention.

During the test, the graduate student was not interfering with the process of brushing the teeth. Before the test, the design was evaluated with the carer. Some of the feedback could directly be applied during the test. The rest was taken into account during further evaluation.

The Puzzle

Baseline test

What is the goal?

To goal of the test is to find an answer to the following research questions:
- Does the intervention increase the acceptance?
- Does the intervention decrease the necessary time?
- Is it pleasant to use the intervention?
- How does the carer feel about being guided through the process via the sheets?
- Is taking breaths between every an effective method to help the carer to stay calm?

Person-centred

Why does it (not) work?

The prototype is evaluated on three main aspects: acceptance, timesaving and likability.
The brushing did not work for the first person with dementia, but it did for the second. During the introduction of the intervention, the graduation student did mention that she found that the success rate of the care depends on the 'vibe' of the carer.
The carer tried to follow the steps in the binder, but the person with dementia kept walking away and did not want to open the mouth. The intervention was not flexible enough to retrieve from this.
The intervention was too present during the interaction. It took the attention away from the brushing. The person with dementia was distracted by the binder. This was more interesting than the tooth brushing. Next to this, it took a while for the carer to read the binder, which took the speed out of the process. This made the toothbrushing less time efficient.
The intervention guided too much. The carer felt belittled because of this. It is not necessary to literally explain every step and tell the carer exactly what to do. They are educated to take care of people with dementia and they know it is important to stay calm and explain everything, sometimes this is just not the only requirement to complete the care.

Sounds + mirrors

Validation person-centred

Vital elderly

What is the next step?

In a new iteration, the focus should be more on the person with dementia. This prototype only helped to guide the carer and help explain all logical steps of the tooth brushing process. It did not support the carer when the person with dementia started showing problematic behaviour despite the intervention. This should be the focus of the next test.

Validation design

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4 design directions

Current care model

4 design directions

Reminiscence

1 main design direction

A step back

Person-centred care

Find out what is important
- Easy to test
- Course of life
- Music •
- Topics •
- People •
- Images •
- Way to approach

Note it in
- Easily readable file
- Wearable
- App
- Interactive guide
- A poster / photobook •

Find it out via
- Interview with:
  - Client
  - Relatives
- Platform/ questionnaire with:
  - Other carers
  - Relatives
- Tips from:
  - Other carers •
  - Relatives

By providing a training before use
- By someone
- Via a video
- Via a manual

By guiding the carer during the use
- A poster •
- A manual •
- An app
- A physical toolbox

By guiding the carer and the client during use
- A movie
- Music
- A game

Make sure the carer is
- Calm
- Not disturbed
- Taking enough time
- Reflecting on success

Do this by
- An app
- A wearable
- Their communication tool
- Something in the environment

Personally, by
- A playlist
- A photo book •
- A movie •

The entire environment, by
- Changes in light
- Changes in sound
- Changes in incentives

Know the client   **Support the activity**   **Support the attitude of the carer**   **Create a safe environment**

What is it?

The possible solutions for the intervention can be divided in four main categories, namely: 'Know your client', 'Support the activity', 'Support the attitude of the carer' and 'Create a safe environment'. This insight gives an overview of all possible design solutions to increase the acceptance of the toothbrush by people with dementia.

What is the goal?

The four design directions can be used for a more aimed idea generation and project planning. The different directions can be explored and tested. It is possible to combine the different directions for one solution. Besides guidance during the idea generation phase, it can help to check whether the solution is complete

Why does it (not) work?

The four design directions give a clear overview of the options for the design. It is probably not complete, but it gives a great overview to continue the idea generation.

What is the next step?

Every direction needs to be explored to find the best solution. The first direction to explore is 'Know your client'.

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Reminiscence

Current care model

4 design directions

Reminiscence

1 main design direction

A step back

Person-centred care

What is it?

People with dementia often start living in the past. The forgotten timespan becomes longer when the disease progresses. Reminiscence is the act of actively retrieving memories. This is something people without dementia automatically do. For people with dementia, this is not self-evident. For them, it is easier to recognise than to recall. Objects can help to trigger memories and encourage to talk about the past.

What is the goal?

Reminiscence is can be very valuable for people with dementia. They are slowly losing the ability to memorise and a reminiscence session can help the person with dementia to feel empowered. The retrieved memories can be written down and used during the care. The information might lead to things that are important to do or avoid during the care. When someone is showing problematic behaviour, the carer can start talking about something that is important to them.

Why does it (not) work?

Reminiscence with people with dementia can be difficult. It needs a experienced and truly interested facilitator that is trusted by the person with dementia to share the stories. Simply understanding reminiscence might not be enough to design a product that really helps to evoke memories.

What is the next step?

The insights will be used to design a product that helps the facilitator to evoke reminiscence and create an overview of the memories that are evoked. The documentation should be clear and it should be easy to read.
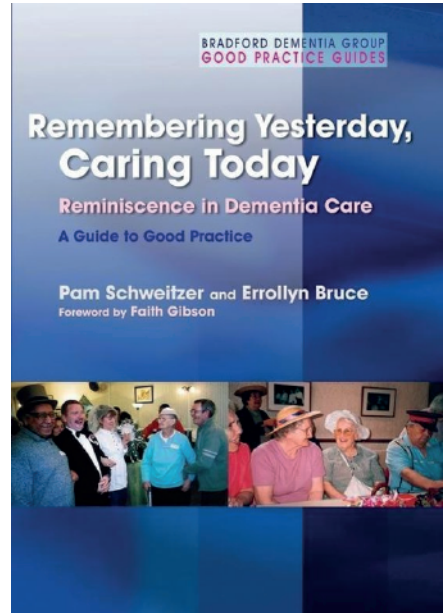
Figure: insightful book about reminiscence in practice. Retrieved from https://www.bol.com/nl/p/remembering-yester-day-caring-today-reminiscence-in-dementia-care-a-guide-to-good-practice/9200000010416055/

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1 main design direction

What is it?

The design directions described before were: 'Know your client', 'Support the activity', 'Support the attitude of the carer' and 'Create a save environment'. After researching reminiscence, it became apparent that the latter three are dependent on the results of the first design direction. The way an activity is supported best, the way the carer should behave or a safe environment depends on the past and the preferences of the person with dementia. The first step of the design is now getting to know the client, the second step is improving the care experience by applying the other steps.

What is the goal?

The improved design directions are a way to guide the design process and test the solutions at the end of the iterative phase.

Why does it (not) work?

The design process is now divided into two steps. The first one needs to happen before the care, the other moment happens during the care. This makes the design complex, but the two steps need to be integrated to truly benefit the carers.
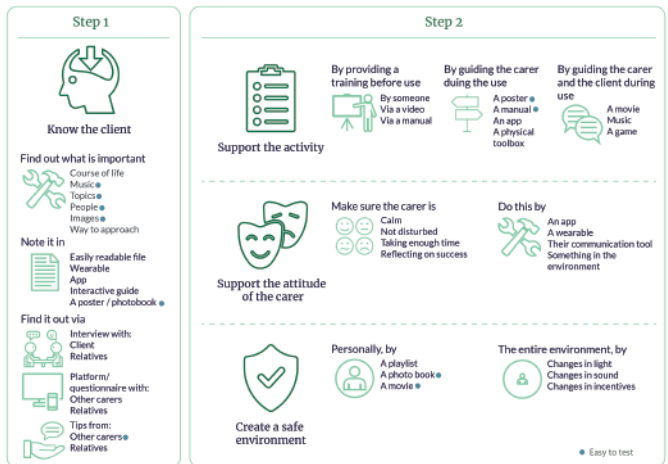
What is the next step?

The renewed design directions changed the focus. Now, the first step is to find a way to know the client and know what is and is not important to them. After a solution to help the carer to get to know the client is found, a solution to use this information during the care can be designed.

Step 1

Know the client

Find out what is important
Course of life
Music
Topics
People
Images
Way to approach

Note it in
Easily readable file
Wearable
App
Interactive guide
A poster / photobook

Find it out via
Interview with:
Client
Relatives
Platform/
questionnaire with:
Other carers
Relatives
Tips from:
Other carers
Relatives

Step 2

Support the activity
By providing a training before use
By someone
Via a video
Via a manual
By guiding the carer duing the use
A poster
A manual
An app
A physical toolbox
By guiding the carer and the client during use
A movie
Music
A game

Support the attitude of the carer
Make sure the carer is
Calm
Not disturbed
Taking enough time
Reflecting on success
Do this by
An app
A wearable
Their communication tool
Something in the environment

Create a safe environment
Personally, by
A playlist
A photo book
A movie
The entire environment, by
Changes in light
Changes in sound
Changes in incentives

Easy to test

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8/24

The puzzle

Guiding binder

The Puzzle

The App

What is it?

The puzzle is a game that carers or relatives of someone with dementia can play together with a person with dementia. It contains of puzzle pieces, all with an equal shape. Two third of the pieces contain pictures of the past. The other part are white and allow the carer or relative to write down important details.

The puzzle pieces are designed in pairs. The carer shows the person with dementia one pair of puzzle pieces and asks the person with dementia which piece speaks more to them. After they picked, it is easier to start a conversation about the topic on the puzzle piece. When the conversation is done, the puzzle piece can be placed in the frame to create a full image about the life of the client.

What is the goal?

The goal of the puzzle is to create a meaningful moment between the carer and the person with dementia by encouraging reminiscence and initiating conversation. When the puzzle is finished, the frame can hang in the room of the person with dementia. The carer can look at the puzzle and use information that is on there to find a subject to talk about.

Why does it (not) work?

At this moment the amount of puzzle pieces is limited. For it to work, many different kinds of pictures are necessary to be able to evoke all memories. Especially complex or small but important memories might only be evoked by specific pictures.

What is the next step?

The design needs to be tested in context to find whether the idea behind the design and the different aspects of the interaction work.

Test 'The puzzle'

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Brainstorm session
Design
User test
Interview

Guiding binder
The Puzzle
Baseline test
Person-centred
Sounds + mirrors
Validation person-centred
Vital elderly
Validation design

What is it?

The prototype of the puzzle needs to be tested in context to see whether the intended goals are met by using the product. This is done by the graduation student with three people with dementia. The severity of dementia with al participants was different. The first participant was still able to have full conversations, the second participant could still speak with full sentences, but was not always able to react logically and the third participant was only able to repeat words. During the test the graduation student presented the participant with two different pictures and asked which one they preferred. Afterwards, the prefered puzzle piece is placed in the frame.

What is the goal?

The goal of the test was to answer the following design questions:
- Does the puzzle help as a conversation starter and does it evoke a meaningful interaction?
- Are the people with dementia able to complete the puzzle?
- Is it possible to learn true events from the people with dementia?
- Are carers enthusiastic about the puzzle and do they believe it can help to increase the acceptance of the toothbrush?

Why does it (not) work?

For the first test, the puzzle really helped to keep the conversation going. The choice between the two puzzle pieces was clear. After asking why she chose a specific piece, she was able to explain. This led to multiple learnings about the past of the participant. Afterwards, in an interview with the carer, it became apparent that the participant confused her husband and her father. On the other hand, the carer did not know that she liked the music in the church.

The second participant was very passive during the entire test. She did not want to put the puzzle pieces in the frame and said about everything that she liked it. This all continued until the picture of a snowman. After seeing this, she became very enthusiastic. Even though, no real conversation was initiated by the puzzle, the graduate student was able to learn that snow or snow dolls did something good for her.

The third participant was not able to participate at all. He could not see the difference between the puzzle and the table, and did not want to grab the puzzle pieces. When the pieces were presented to him, he grabbed some and started ticking on the table.

Concluding, the puzzle can evoke details of memories that carers have not heard of before, but only when the dementia of the person suffering from it is not severe. The carers were enthusiastic about the design and the effect and did believe that it could add something during the care as a back-up to find conversation starters.

What is the next step?

The next step is to find a way to document the retrieved memories in a clear way. People are complicated, and it will take many puzzle pieces to track what is important to someone, but the puzzle should not become gigantic. Next to this, the decision making process in which the person with dementia gets to choose from two puzzle pieces causes that some pieces in the puzzle are not that relevant.

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A step back

What is it?

After a meeting with the company chair, it became clear that the chosen direction of finding a way to retrieve memories does not directly benefit the acceptance of the toothbrush. The focus shifted towards knowing the client, instead of to step two, applying the knowledge to make the care more successful.

What is the goal?

The goal of the step back is to get back in the testing 'vibe' and to get the understanding of the problem back. This is the starting point of a new iteration, where the focus is on using the information that is retrieved in the 'Know your client' step to improve the quality of care.

Why does it (not) work?

The step back changes the design direction towards the final design, instead of detailing this design direction.

What is the next step?

First of all, a baseline test will be done to get the focus back on the real problem. It helps to understand the details of the problem again. At the same time, a brainstorm will be organised to come up with the different ways that will increase the acceptance of the toothbrush. The most promising solutions will be tested.

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11/24

Person-centered care

What is it?

Person-centred care is an approach of Tom Kitwood to care for people with dementia. It puts the person with dementia in the centre of their care.
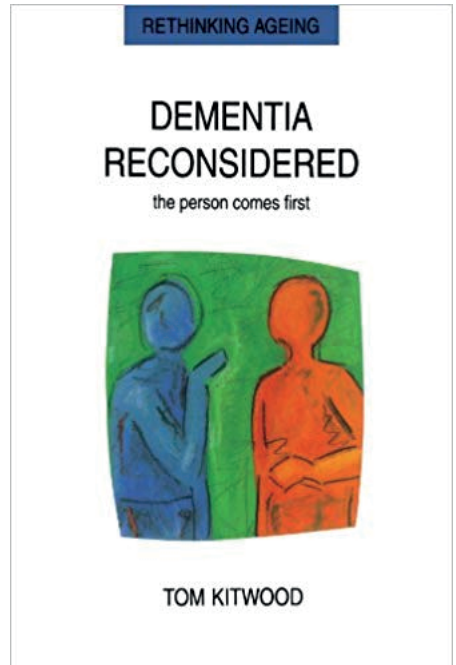
What is the goal?

People with dementia are often dehumanised by their environment, since they are often not able to explain their preferences or have a complete conversation anymore. This makes it difficult for the environment to treat them as adults. The approach supports the carer to treat their client as a human with wants and needs again.

Why does it (not) work?

It is difficult for carers to apply this method . People with dementia are less able to explain what they need and want, it is not possible anymore to directly put in words what they prefer during the care. That does not mean a person with dementia does not have a preference. Carers need to put effort in finding out what is preferred by their client and keep up with doing this, even though it is a order or task they are not enthusiastic about.

What is the next step?

Even though carers know that this approach is beneficial for a pleasant care moment, it is often not applied. The next step is to make something that supports the carer to apply this approach.

RETHINKING AGEING

DEMENTIA RECONSIDERED
the person comes first

TOM KITWOOD

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Brainstorm person-centered care

Brainstorm with colleagues

Brainstorm person-centred care

Brainstorm implementation

What is it?

Person-centred care is often not applied by carers, even though they know that it can be beneficial. It is expected that this is caused by the carers not being able to easily apply this method. A individual brainstorm is set up to find solutions to this problem

What is the goal?

The goal of the brainstorm is to get an overview of the solutions that can help carers to provide person-centred care for people with dementia. The brainstorm was designed around two main design questions: 1. Which subjects and procedures can help carers to provide more person-centred care? 2. In which format should the design be to provide the best support for carers.

Why does it (not) work?

The brainstorm was done individually by the graduation student. This could have caused an incomplete overview. Nevertheless, the overview was extensive enough to provide direction for the next step. This feeling was enhanced by the clustering of the ideas: every option did fit in one of the 3 design directions as defined before.

What is the next step?

The most valuable ideas from the brainstorm need to be tested in simple tests, without designing too much.

Baseline test
'De Leeuwenhoek'

Guiding binder

The Puzzle

Baseline test

Person-centred

Sounds + mirrors

Validation person-centred

Vital elderly

Validation design

What is it?

A baseline test was conducted with carers and clients that had never seen the product before. They were shortly introduced with the product and the value of the product and were asked to introduce the product to their clients with dementia the way they see fit and try to use the product.

What is the goal?

The goal of this test was to get back into the context and get a renewed understanding of the problem definition. It helps to see again what the problems are again in the light of the most recent insights.

Why does it (not) work?

The carers were a bit careful with trying the product with clients that were not able to understand the explanation. Thereby, the first test went really well. The first participant was very open to the product. She was enthusiastic and could understand that it was beneficial when someone is not able to brush their own teeth anymore.

After some perseverance, the carer accepted to try the brush with someone that was not able to understand anything anymore. With her, it did not work out. She did open her mouth when the carer held the brush close to her mouth for the first time. When she realised it was not food, the became agitated. The brushing turned into a fight, which ended up in the client crying.

The third test was with another carer and another person with dementia. The carer took the time to explain the product and make the client comfortable. Before she put the brush in his mouth, she made sure that he really understood. Nevertheless, the brushing did not work out. In the end, the help of four carers was needed to put the brush in this mouth. This was partly necessary because none of the carers were wearing gloves.

The last test was with a Surinam lady. The carer started speaking in Surinam. This made it hard to follow what was exactly happening. In the end, the brushing did not work out. During the conversation after the test, the person with dementia yawned. The carer took the opportunity to quickly put the brush in the mouth of the woman. Unfortunately, she closed her mouth too soon. During the conversation after the test, the carer mentioned that with this woman, it was helpful to brush in front of the mirror, because she will than make jokes with her reflection.

What is the next step?

Now that the problem is clear again, the solutions that were found in the brainstorm about person-centred care can be tested in multiple user tests to find the best direction.

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Interview gerodontologist about current solutions

Gerodontologists (current solutions)

What is it?

The gerodontologists of Mondzorg+ in Pieter van Foreest were interviewed about the current solutions for problematic behaviour during dental care. The dental care department of the nursing home is an interesting case study. They provide care for the entire nursing home and do not know the people they are caring for. The care they provide is invasive and needs collaboration from the clients. In addition, people are often afraid to visit the dentist. This makes the care even more complicated

Location manager

What is the goal?

The goal of the interview is to find the current solutions the dentists and dental hygienists use to avoid and solve problematic behaviour.

Why does it (not) work?

The most important solution of the dentists is taking the time for a client. Before they start the procedure, they always have a conversation for a while. Furthermore, the dentists notice that many of the clients understand the situation, because it is very recognizable.

Caregivers

They do believe in the use of music or personalised conversations, but they do not use this currently, because they do not have an overview of the preferred solutions.
At last, the dentist showed an empty care plan, to explain what is visible. The care plan had room for important information. Firstly, extremely important information could be filled in in the file. When someone opens the file, the information pops up in a red screen. Next to this, all related people can add information to the file. This information can be difficult to find and the dentist admitted that she normally did not look at it.

Gerodontologists (app)

What is the next step?

This interview confirmed the benefits of the use of person-centred care and the problems carers and other care professionals experience with the application of person-centred care and an approach for using the preferences of the clients during the care. This gives an extra confirmation that the direction of a tool to easily apply personal preferences is the right direction.

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Test 'Person-centered care'

What is it?

From the analysis it became apparent that it can be beneficial for the care when personal preferences of the client are used. This can be the use of the favourite music or completing the care according to the preferred morning ritual. This is tested at Zorgboerderij Buitengewoon. Of three of the clients at this location, their hobbies, favourite animals, favourite calming music and favourite energising music is collected in videos and audio files. During the test, the carer is asked what they think will be the most successful solution based on the mood and past of the person with dementia. The videos are played before the brushing and the music is played during the brushing. The test was conducted with a prototype that was not doing anything. After the test, the results were evaluated with the carer.

What is the goal?

The goal of this test is to find out whether it is beneficial to use personalised music and videos during or before the use of the toothbrush developed by Dental Robotics. To goal of the test is to find an answer to the following research questions:
- Does the use of videos or music increase the acceptance?
- Does the use of videos or music decrease the necessary time?
- Is it pleasant to use personalised music or videos?
- How does the carer feel about the use of music during the brushing?

Why does it (not) work?

For the first time during the entire research, all the tries of a user test were successful. It is expected to by caused by one of the following two things: 1. The application of personalised music is truly beneficial to the attitude of the person with dementia and the attitude of the carer or 2. The carer that participated was very good and had a good approach to the brushing process.

All participants accepted the toothbrush. The carer was very flexible and gave the people with dementia a lot of independence during the use of the brush. For all participants, the brushing worked out at the firs try.

During this test, the carer chose to use music only. This was used during the brushing and did not cost any extra time. The brushing worked out at the first try, which significantly reduced the necessary time. For most participants, the carer recommended to turn on music that would calm the person with dementia. After the test, the participants did not even notice that the music had been turned on. Unconsciously it must have calmed them. For the last participant, the carer chose to turn on energising music. This resulted in a very enthusiastic reaction of the person with dementia. He started dancing and moved to much to put the brush in his mouth. The carer asked to turn off the music and this calmed the person with dementia so much that the brushing worked out completely and that is was possible to finish the brushing process.

The carer was enthusiastic about the approach of personalised music. The team manager mentioned: "The only reason we continue doing these tests, is because we see real progress and like how serious you take this"

What is the next step?

The test results need to be validated. This will be done be doing the test again with the same participants with dementia. Previously, the tests did not often not work out with these people. If it works out again with everyone, there can be concluded that the method of using personalised music and videos is successful.

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Test 'Sounds and mirroring'

(Sidebar tabs: Guiding binder · The Puzzle · Baseline test · Person-centred · Sounds + mirrors · Validation person-centred · Vital elderly · Validation design)

What is it?

Next to the personalised music and videos, a test is conducted with general music and videos. This included old Dutch music (e.g. Zangeres zonder naam) and videos with moving bubbles. Another objective of this test was to try to use another, not-working prototype that could be used by the carer simultaniously with the person with dementia, to see if mirroring is an effective solution to increase the acceptance. The test was conducted at de Bieslandhof (a location of Pieter van Foreest).

What is the goal?

The goal of this test was to find whether not-personalised music and videos were beneficial to the acceptance of the Dental Robotics toothbrush. The goal was to answer the following research questions:

- Does the use of videos or music increase the acceptance?
- Does the use of videos or music decrease the necessary time?
- Is it pleasant to use personalised music or videos?
- How does the carer feel about the use of music during the brushing?

Why does it (not) work?

The carer was not open to use extra tools to perform the care. She mentioned: "No, I do not need that, I will just say to them that it is like a spoon and they will bite on it, no questions asked." Even after insisting on trying it, she refused. The first three participants were still able to understand the explanation of the carer. Due to this, the carer did not treacheries to make the brushing successful. It was clear that the clients understood that the interaction was similar to the one of eating with a spoon.

The last participant however was not able to understand such a comparison. With here, it did not work out at all. She did open her mouth when the carer brought the brush to her mouth, but as soon as the brush was in her mouth, she started shewing. It was not possible to take the brush out of her mouth anymore. After asking whether one of the extra tools I brought would help, she denied.

Unfortunately, the research questions could not be answered due to the stubbornness of the participating carer. Nevertheless, the test was useful. It did show again that a test without an extra intervention does not work out with a person with severe dementia.

What is the next step?

This test helped to realise that the intervention will only be beneficial to the acceptance of the toothbrush developed by Dental Robotics when the carer believes in the product and is willing to use the product during the care. This leads to the extra requirement: The design should encourage carers to use the product during the care.

Validation 'Person-centered care'

Guiding binder

The Puzzle

Baseline test

Person-centred

Sounds + mirrors

Validation person-centred

Vital elderly

Validation design

What is it?

The previous test that used personalised music and videos did work out really well: the acceptance was a 100%. However, this could have been a coincidence. The test is repeated on a different moment with a different carer to see whether the solution is successful again.

What is the goal?

The goal of the test is to validate the results of the previous 'person-centred care' test. The aim is to answer the following research questions:
- Does the use of videos or music increase the acceptance again?
- Does the use of videos or music decrease the necessary time again?
- Is it pleasant to use personalised music or videos again?
- How does the carer feel about the use of music during the brushing?

Why does it (not) work?

The test was conducted in the tv room of Zorgboerderij Buitengewoon. This setting was a bit different compared to the previous test, but the same test objectives could not be achieved. The fact that the brush is used in a room other than the bathroom could decrease the acceptance of the toothbrush. Nevertheless, a 100% acceptance rate was reached again.

This carer had a different approach and suggested to use videos to increase the acceptance. It was not possible to watch the videos during the brushing,: the screen was too distracting to use during the brushing. The person with dementia started to touch the screen to point out things that were visible. This led to the video pausing and the volume changing for multiple times.

What is the next step?

The acceptance of the toothbrush was again a 100%. This is enough validation that this is the right direction for the final design. The next step is to find a format in which the carer is sufficiently supported to apply the insights from this user test.

Figure: the Elfstedentocht, used during the test. Retrieved from https:https://www.youtube.com/watch?v=M_VesDG-Wtg&t=40s

Test
vital elderly people

What is it?

This test was conducted for a colleague, and was not related to the graduation project. The test was conducted after a gym class of elderly people.

What is the goal?

The goal of the test was to assess details of the product (e.g. the fit of the mouthpiece, the size of the handle). The last of the test was: "Would you use the product everyday instead of your current toothbrush?"

Why does it (not) work?

This user test was unexpectedly insightful for the graduation project. None of the participant answered the last question positively. They all had the same reason for not using it. They argued: "I am still able to brush my own teeth. It gives me a feeling of control when I am able to brush all my teeth individually. I know what teeth I have brushed and that gives me confidence."

This highlighted the feeling of autonomy that elderly feel and want to feel. They treasure the tasks they are still able to complete and they will not easily give up on things they are still able to do.

What is the next step?

People with dementia have to give up on their autonomy in many tasks. It will be valuable for them to be able to redeem the task of brushing teeth. This gives extra motivation to find a solution to solve this problem. It also gives guidance to add something to the product that encourages carers to give their clients more control over the care ritual.

Interview location manager 'De Leeuwenhoek'

Insights

Brainstorm session

Design

User test

Interview

Gerodontologists (current solutions)

Location manager

Caregivers

Gerodontologists (app)

What is it?

This interview was more of a conversation between the graduation student and a team manager and the location manager of the Leeuwenhoek.

What is the goal?

The goal of this interview was to get permission to do user test on the psychogeriatric department of the nursing home location De Leeuwenhoek. Next to that, the interview was a way to validate the final design direction of person-centred care.

Why does it (not) work?

The location manager and team manager were enthusiastic about the toothbrush in general, but had their doubts about the application of the toothbrush for the target group of people with severe dementia. They mentioned: "You should always consider if it is worth the agitation to brush the teeth of someone with severe dementia if that means that they become agitated, possibly for a longer period per day." and "We now have the oral care organisation, when people go there, we give them sedatives, that works." During the interview, the graduation student had problems explaining the benefit of person-centred care. Both the interviewees mentioned that the project was too complicated and that it had no chance to succeed.

The nursing home was way more focussed on short-term happiness than long-term happiness. They are focussed on avoiding problematic behaviour instead of providing complete care according to the procedures. This is an approach that is debatable.

What is the next step?

This conversation motivated even more. The nursing home did not apply person-centred care at all and did not understand the benefit. For this nursing home, the goal was not to make the application of person-centred care more easy to apply, but to have the carers apply person-centred care in general.

Implementation

Insights

Brainstorm session

Design

User test

Interview

Brainstorm with colleagues

Brainstorm person-centred care

Brainstorm implementation

What is it?

Research has shown that personalised music or videos are beneficial to the acceptance of the toothbrush of Dental Robotics. Most carers do already know that this can help to improve the care moment, but in reality, this does not happen. The brainstorm was done individually, with help of Nick Hermes, who is technology consultant at Deloitte.
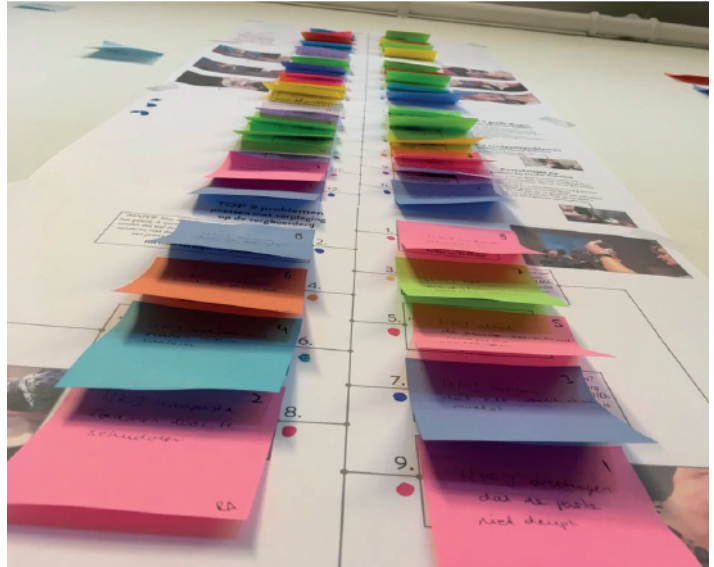
What is the goal?

The goal of this brainstorm is to find ways in which the information about the client can be displayed and that allow the carer to easily apply the method of personalised music and videos.

Why does it (not) work?

The overview was far from complete. The options for digital communication and visualisation are almost unlimited. However, the solution should not be too complicated, to make it easy to implement by nursing homes. Therefore, the overview is complete enough for now.

What is the next step?

The next step is to make a design of the most viable options.

Insights

Brainstorm session

Design

User test

Interview

21/24

App for
personal care plan

Guiding binder

What is it?

The app is a design to allow carers to easily apply music, videos and pictures during the care for people with dementia. Besides, the app gives an overview of topics to talk about and of negative life events that should not come up during the care in any way. The app has the option to choose the current client from an overview with all residents of a department. Next, an overview of the previous mentioned options is shown. It shows the success rate of all the options over time and during the last use of the method.

The shape of the app is still undecided. For now, three options are developed. The first option is an interactive mirror in the bathroom, that allows to see yourself during the care and support the interaction with the app. The second option is an phone app, combined with a sensor in at the door of the room of every client. The moment a carer walks in for the morning care, the right client is automatically selected and the music in the app automatically starts playing. The third option is an tablet app. The carers can bring the tablet from room to room and select the right client automatically. This option has an addition that blocks the screen when a video is played.

What is the goal?

The goal of the app is to support the carers to apply person-centred care as easy as possible.

Why does it (not) work?

The app is not developed enough to actually work. Only the most basic screens are tested.

What is the next step?

The different options need to be reviewed by carers and gerodontologists. It is not clear whether the predicted benefits and disadvantages are perceived as expected. This should be tested.

The Puzzle

The App

Insights

Brainstorm session

Design

User test

Interview

22/24

Interview carers about app

Gerodontologists (current solutions)

Location manager

Caregivers

Gerodontologists (app)

What is it?

During the delivery and pick-up of the sheets with the explanation of the app, two carers were interviewed about their thoughts about the app and person-centred care in general. Both carers had already participated in user test with the Dental Robotics toothbrush before.

What is the goal?

The goal was to explore the wants and needs of the carers and to find out if they saw a benefit in the app.

Why does it (not) work?

The first carer mentioned that she did not really believe in the added value of music and videos during the care. Nevertheless, her participation in the user test got her thinking about applying person-centred care. During the test one of the participants started shewing when the brush was in her mouth. With a normal brush, this also always happens. After the test, the carer started trying different methods to possibly improve the care. In the end she found out toothbrushing works best when the client was on the bed. However, she mentioned: "It is not in the care plan yet, I only did it a few times, I need to be sure of something before I can write something down in there."

The second carer did believe in the value of person-centred care. She mentioned however: "But then, there is time pressure." She acknowledged that she does not apply it, because it is too much effort during the care in the morning and evening. This confirms the value of an app that helps carers to easily apply person-centred care.

What is the next step?

The focus of the development of the app should be switched a bit more from the exact functions and layout to convincing the carers of the benefit of the app. The interview with the first carer gave the insight that even trying or mentioning person-centred care once can already motivate to try new things. It also showed that the app should allow flexible notes, that can easily be deleted or edited when something does not work anymore. The second interview pointed out that the app should be very easy to use and that the use of the app should not even feel as extra work.

Insights

Brainstorm session

Design

User test

Interview

23/24

Interview gerodontologists about app

Gerodontologists (current solutions)

Location manager

Caregivers

Gerodontologists (app)

What is it?

The gerodontologists of Stichting Mondzorg in Pieter van Foreest were interviewed about the benefits they would experience by using an app that allows the application of person centred care.

What is the goal?

The goal of this interview was to find out what wants and needs the gerodontologists have for such an app. They have clients coming over and pay visits to clients in their rooms. They do not know the clients, and have to perform complex care with them. This is different compared to carers, while they are an interesting potential target group for the application.

Why does it (not) work?

The dentists and dental hygienists were excited about the benefit of the app. They mentioned about playing the music: "It is amazing what music can do! I do not understand why it is so influential on people, but it works." and about the videos (in combination with discussing the subject on the video): "It works because you take the time to understand someone and gain trust. People are way more relaxed afterwards". They also saw the benefit for them. The current care plan does not show the best approach towards a client and the application of music can be risky, because it is not clear what will do good an what not work.

What is the next step?

The next step is to ask for specific feedback to validate the design of the app.

Figure: https://www.stichtingmondzorg.nl/wat-doen-wij/preventieve-mondzorg/

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Validation person-centred

Vital elderly

Validation design

What is it?

An overview of the app for person-centred care and the implementation options is developed. It contains 4 different screens of the app, three implementation options and an explanation of the working principle and expected benefit. This is combined with the following questions: 1. What do you like about the app? 2. What should be improved? 3. What should really be included in the app? 4. What is your favourite application? 5. Why do(n't) you like the application? The sheets are distributed among two psychogeriatric departments and one dental care facility of Pieter van Foreest.

What is the goal?

The goal is to find the likes and dislikes of carers and gerodonotolists about the app and the implementation methods and to find an answer to the questions on the sheets.

Why does it (not) work?

To be researched

What is the next step?

The next step is to implement the collected feedback and review the new implementations again.