



## Cuddling with new friends

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*A compilation of guidelines for care professionals when using robotic animals in the care of people with dementia.*

This compilation of guidelines has been developed within the parameters of the SIA RAAK project *New friends, old emotions*.

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# 1. Introduction

## Why Cuddle robots

A cuddly robot is a robot in the shape of a soft toy animal. Through modern technology it is possible for the robotic animal to react to human contact by making noises and certain movements itself. The most well-known and advanced cuddly robot is Paro, a baby seal. He reacts to (voice) sound and touching by for example purring, opening and closing his eyes or by moving his head. This is how the cuddly robot invites the person to cuddle, stroke, pick up and put down and also to talk to him.

The general goal of using cuddle robots in the treatment of dementia patients is to increase their feeling of health and wellbeing. More specifically cuddly robots are used for example to facilitate and allow certain care processes to be

administered more easily and less stressful. Also they help to make contact with the client or let their family do that. A calming ambience could be created in this way or Indeed be used to stimulate the client.



*Fig. 1. Cuddly robot Paro*

The use of cuddly robots can produce positive effects on the general ambience, the contact with and between the client and care professionals, and the conduct of the client. In practice the following observations have been made when the client was in contact with a cuddly robot they :

- calm down or indeed revitalise;
- are less anguished and/or confused;
- feel less lonely and/or depressed;
- are happier and laugh more;

- remember earlier times (reminisce) ;
- communicate more and better with their surroundings;.

## **New friends, old emotions**

But how are these effects reached? How to use the robot? For which client is het suitable or not? What do you have to watch out for? How do you work with groups of people or an individual client? When and how do you involve the members of the family? What are the experiences of other care professionals? These are a few of the many questions care professionals and volunteer care workers who (want to) work with cuddle robots have. There is a need for information and practical tips when using cuddle robots in the care of people with dementia .

To meet this need the project “New friends, old emotions” was begun at the end of 2012. In this project the University of Applied Sciences Windesheim and the University of Applied Science Zuyd together with professionals from 6



participating care centres for the elderly and with the Spanish knowledge partners “ LaSalle Universiteit” Ramon Llull and the Alzheimer centre of the Carlos III Institute for Health, carried out practical research into the use of various robotic animals:

- by individual patients and in groups;
- in the various stages of dementia;
- the cooperation with family and volunteer carers;
- the effects that occur.

The Spanish partners had knowledge and experience of how various robotic animals. They also had measurements of the wellbeing of people becoming dement. This knowledge was essential performing the research.

Furthermore a few measurements were taken in Spain to validate the Dutch data and conclusions.

Many new insights came from this data, which will be discussed later .

However the first result of the project is this handbook in which we give as many ‘evidence based’ answers as possible to the questions which arose from the care professionals during this project.

## **About this handbook...**

This handbook explores the need of care professionals and volunteer carers of tips for the use of cuddle robots.

Not only does it provide information on cuddle robots in the care of dementia patients but it also offers practical tips and advice .

These are based on results from our own and existing research into cuddle/hugging robots ( especially the seal Paro) and related interventions: sensory therapy and therapy with (domestic) animals.

In particular the experiences of the researchers, care professionals and volunteer carers with the robots were the starting point for the creation of this handbook which points towards the use of all types of cuddle robots in the care of people with dementia.

The goal of this handbook is to help the care professional when offering cuddle robots to people with dementia.

It offers insight into the possibilities of the use of a cuddle robot.

It is definitely not the intention to provide the care professional with a set of rules.

It goes without saying that the most important things are the experience and knowledge the care professional has with the target group. This forms the basis of working with the target group. Every person and situation is unique within the target group. As is usual in the care sector the needs and wishes of the individual client come first and foremost when using cuddle robots.

The focus in this handbook is on the activity itself. Before this is covered you can read about why cuddle robots should be used in the care of dementia : What is the goal? What are possible effects? How can these be reached? Following this is the chapter in which practical tips and pointers are given for when preparing, implementing and evaluating the activity with the cuddle robot. Furthermore a few possible methods of work are described and in the final chapter a few examples from the field will be mentioned. Hopefully there will be some recognition and inspiration to help you decide to use cuddle robots in caring for your client(s).

## **2. Research into Robotic animals in dementia care**

For the last few years cuddle robots have been used in the care of the elderly with a wide variety of problems.

Various studies have shown that cuddle robots have a positive effect on the health and welfare of the elderly suffering from dementia.

A large number of these studies is with Paro, a seal robot, which were carried out in Japan. This especially takes into consideration the experiments which took place in a care home or a daily activity centre for the elderly (Shibata, 2004-2005; Wada, 2005-2008; Wada & Shibata, 2007).

There was only a limited translation into practice made during these studies on the effect of robot therapy. Due to this very little is known about the effective use of cuddle robots in care.

As a result of this shortage of practical knowledge and guidelines when using cuddle robots in healthcare, research was performed into the existing literature in the following areas:

- 1)the experience of users( care professionals ,volunteer carers and clients ) of cuddle robots.
- 2)existing manuals and guidelines for similar interventions such as sensory sessions, therapies with dolls/cuddly toys and therapies with ( domestic) animals.

The first study of the literature tried to draw up guide lines based on experiences of the care workers and clients when using cuddle robots. The second study looked at existing guidelines for similar interventions to robot therapy. In this way possible guide lines for robot therapy could be drawn up. The following is a short description of the results from the literature studies which have finally produced an overview of possible guidelines for the use of cuddle robots in the care of people with dementia.

### **Experiences with cuddle robots**

During February and March 2013 (international) literature was looked for regarding therapies and activities with cuddle robots. Not only was care for the elderly but also care for handicapped people and mental health care looked

into. This search resulted in a final list of 23 articles in which the opinion and experiences of users of cuddle robots was mentioned.

### ***Type of robot***

Most of the articles concerned robot therapies with Paro, the 'seal robot'. All cases were concerned with activities for the elderly. Other articles described activities with robot cats

NeCoRo and Cleo (Libin & Libin 2003, 2005), robot dog AIBO (Banks. Year 2008) and the Nabaztag (Klamer & Ben Allouch 2010), a communications robot in the shape of a rabbit.

### ***Experiences of care professionals***

When the opinion and experiences of care professionals is mentioned usually we refer to nursing staff at an old peoples home . The experiences of the care professionals were in general of a positive nature. Changes of a positive nature were observed in the behaviour of people during and after interaction with the robot. The carers especially noticed positive effects on the communication and interaction with and between the elderly people.

The robot offers opportunities for the carers and clients to talk with each other about the robot, its appearance and its movements and reactions. It was also observed that the elderly became more active and happier through contact with the robot. The general picture of the experiences of the care professionals shows that robot therapy improves the general wellbeing of the client and creates a better atmosphere in the group and care home .

In the more discerning experiences of the care professionals it is noted that not everybody is suitable.

Some elderly people are afraid of the robot or due to some other reason do not want to take part in the activities with the robot, e.g. because they do not like animals or because they become agitated by the sound of the robot.

Also some carers question whether the elderly people are stigmatised when allowed to “play” with a robot. They have the idea that the elderly people would be made to look fools because they find it difficult to differentiate between a robot and a living animal when approaching it.

Also mentioned is the need for guidelines and methodology for using cuddle robots by carers.

The professionals do not often know how to handle the robot exactly or how to use it to an advantage for the care of their clients.

### ***Experiences of volunteer carers***

It has been highlighted in the literature that the children of parents with dementia find they are able to communicate more easily with their parents thanks to the robot.

They see that it helps their parent(s) in expressing their emotions and feelings. They see that their parents laugh more and have fewer problems with loneliness. Just like the care professionals the volunteer carers think that the robot is less suitable for people who do not like animals or cuddling. Furthermore they also experience the need for guidelines when offering the cuddle robot.

### ***The clients experiences***

In general the experiences of the clients are positive. People think it is nice to make contact with the robot. They become contented and feel less lonely when the robot is close by encouraging them to talk. The robot causes the people to sit closer together and to talk to each other in this way.



The elderly in a care home or a nursing home notice that the atmosphere in the group is better when the robot (Paro) is present. In some cases the clients rename the robot or sing songs for him. Women in particular treat the robot as if it is a (small) child/baby. Men are often more interested in the technical side of things, and want to know how the robot works.

Several clients have let it be known that they want nothing to do with the robot, because it is not a real animal or they are afraid of him. Others especially male clients think it is childish or effeminate to play with such a cuddly toy or they find it boring because the robot cannot talk.

### **Experiences with related interventions**

Therapy or activities with cuddle robots have a similarity to interventions which have been used for a longer period of time, such as sensory therapy and therapy with real (domestic) animals, or with dolls and cuddly toys. The most important similarity is that all these interventions, just like robot therapy are aimed at stimulating the senses.

Because these interventions exist and have been implemented over a longer period of time , it may mean that manuals and certain methods have already been developed. This is the reason why the existing literature was looked into for guidelines for these interventions. This knowledge can then be used in the drawing up of guidelines or developing a guide for the use of cuddle robots. The following related interventions were also the subject of the literature studies

- **Sensory therapy**

Sensory therapy is an activity designed to stimulate the senses, and that is why it is sometimes called sensory activation. Sensory therapy is designed to positively stimulate the senses. We define Sensory therapy as a method directed at the active stimulation of the senses, hearing, touch, sight and smell, in a client friendly and trusted environment. (van Weert, 2005).

- **Therapy with dolls and cuddly toys**

In this case non mechanical dolls and cuddly toys are used in the care of people with dementia.

- **Therapy with animals (animal assisted therapy)**

Therapy with animals, also known as animal assisted therapy, has been applied in the treatment and guidance of a range of target groups for several decades. This term is applied to all types of animal therapy. The use of (domestic) animals, such as cats dogs rabbits horses and dolphins frequently occurs.

When researching into the ( international) literature on these related interventions many articles and studies were found regarding the effects and application of sensory therapy. No useful literature was found on the use of therapy with dolls. There was also little found on therapy with animals. The results of the related interventions which are described here come mainly from the studies which were directed at sensory therapy as a therapy or activity for elderly people with dementia.

- **Related interventions, related effects**

It appears from the literature that sensory therapy has similar positive effects to those which are achieved when

using cuddly robots. This is why sensory therapy is able to produce improved wellbeing and behaviour in people with dementia. This means that people with dementia during and/or after participation in a sensory therapy activity show more happiness are more active and have more interaction and communication with their surroundings. Furthermore sensory therapy can achieve less apathy and agitation in people.

The possible effects of animal assisted therapy are similar to those of sensory therapy and robot therapy. This allows people with dementia who have had animal assisted therapy to possibly become less apathetic and agitated in their behaviour. In addition it could calm the people with dementia down resulting in them showing an improvement in social behaviour, demonstrated by more laughing and talking and more interaction with their surroundings. In short, just like robot therapy related interventions such as sensory therapy and animal assisted therapy can be effective especially in the communication and interaction between clients.

## **Recommendations and guidelines for related interventions**

In de period of February-March 2013 (international) literature was searched through for guide lines or recommendations for the application of sensory therapy or animal assisted therapy and therapy with dolls and/or cuddly toys . A total of 22 articles was found . As mentioned earlier no useable literature was found regarding the therapy with dolls and cuddly toys. Most of the articles cover sensory therapy (15/22). A further six articles were found where animal assisted therapy was the main subject. In one article both therapies were discussed

### ***Sensory therapy sessions***

The description of existing guidelines and/or methods was looked at in the articles found on the application of this intervention. It was found in the literature that, sensory therapy and multisensory stimulation are one and the same which is usually offered in a defined method. The

activity takes place in most cases in a separate space which is specially designed for the purpose of sensory activities. This means that the space is designed with amongst other things various coloured lamps, mirrors, music and perfumed oils (Pinkney, 1997). A sensory therapy session is generally of an individual nature ( one to one guidance) and takes on average half an hour.

A sensory therapy session is usually guided by a member of staff who is specially trained in the application of the sensory therapy method.

### ***Working with animals***

Animal assisted therapy in practice seems to have a less predefined way of applying the therapy than by sensory therapy. Most of the time it takes the form of visiting dogs or cats which for a certain time are allowed into the living quarters or communal areas of the participants. This could take place on an individual basis or in a group session. The animals are usually accompanied by their owners or trainers. This could be a care professional from the institution, but is more often someone from outside the

institution who is not specifically trained to work with the animal and the inhabitants of the institution.

Guide lines for sensory therapy were most commonly found in the literature, sometimes in the form of a manual.

Furthermore we looked in the literature for the contents, method of working and the necessary competencies for sensory therapy and animal assisted therapy. This gave an overview of the most important (most frequently mentioned) recommendations and guidelines for the interventions.

This overview was laid alongside the above description of the experiences with cuddle robots. In this fashion we were able to reach a set of guidelines which is possibly suitable for the application of cuddle robots in the care of people with dementia.

## Results from new (field) studies

Within the project *New Friends, old emotions* several studies were undertaken with people with dementia and supplemented by interviews with care professionals in Spain and the Netherlands (Heerink. 2013 a en b, Heerink 2014, Heineman. 2014). The questions which we would like to have answers to were the following: :

- Is a seal indeed the most suitable form for a robotic animal in this context.?
- Are there differences between how the people with dementia react to robotic animals?
- Are there experiences of care professionals which could lead to the setting up of guidelines for working with robotic animals for people with dementia?
- Are there differences of perception between the views of the volunteer carers and the care professionals regarding perception and need for guidelines?



- Are there differences between the perception of care professionals with and without experience and between Spain and the Netherlands?

To enable us to answer the first two questions we noted the reactions of people with dementia to seven different robotic animals; a dog, a cat, a teddy bear, a seal, a monkey, a penguin and a koala bear. Not only did we observe the reactions to the animals when they did not move or make a sound (when they were switched off) but also when they did move and make sounds. The animals were all of a similar size, approximately 30 centimetres long and all were able to move their arms and heads when touched. When doing this they also made a soft squeaking sound adapted to the natural sound of that type of animal. The interest in the seal did not seem to be greater than that in the dog or cat. The interest in the monkey and koala was marginally less. The penguin hardly scored at all and a surprising observation was that the interest in the teddy bear was just the same as that in the seal, cat, and dog as long as he did not move. However this interest disappeared as soon as he moved. An explanation for this could be that

the teddy bear is known and trusted as a “lifeless” cuddly toy, but not as a moving robot.

Our conclusion that the seal was not always the most suitable form was confirmed by the care professionals. Many of them seemed to have experience with cheap robots from the toyshop. Sometimes this was due to a limited budget: seal Paro cost around € 6,000, compared to the cost of a robotic animal from the toy shop at around € 50. They noticed that for many of the activities these cheap animals were effective enough, sometimes even more so due to the fact that they were much less heavy than Paro. Furthermore we noticed strong personal preferences; people who hardly reacted to the seal often reacted much more positively to a cat or a dog. Even others reacted more strongly to a monkey or a koala bear. A therapist in Madrid called us when she realised she actually needed a whole box full of animals to be able to work with all the people in her group. Regarding the differences between the care professionals we noticed that in general there were a lot of similarities. Where there were differences, we could not attribute them to a country, education or experience. What we can say is that volunteer carers who have a partner with

dementia have less need for guidelines. They wanted to find out for themselves what worked for their partner. They of course had personal background knowledge of their husband or wife.

### 3. Practical Directions

In this chapter we will give a few directions for the application of the robotic animals which are on sale at the moment. It goes without saying that both manufacturers of medical aids and toy manufacturers will be working on new animals. A list of the most recent animals brought out on the market is kept up to date on the website; *robots.nu*. We strongly recommend visiting this site if you are planning to purchase a robotic animal.

You can otherwise find a list of the URL's of suppliers and manufacturers most well-known to us at the back of the handbook.

#### **What are usable robotic animals?**

There are robots which have been especially developed for people with dementia such as Paro, which costs around € 6,000 and JustoCat, which costs around € 1.300.

Both robots are quite heavy ( almost 3 kilos). Paro is without a doubt the most advanced :

- He recognises a daily routine of morning, afternoon and evening.
- He has five types of sensor; touch, light, sound, temperature and posture/position
- He recognises light and dark
- He is able to feel when he is being stroked, including the amount of pressure used.
- He understands when he is being held
- He recognises the direction from which sound comes
- He recognises his name, various greetings and words of praise.
- He remembers interactions and adjusts accordingly.
- He shows his feelings by sound, movement and eye movement.



*Fig. 2. JustoCat by Robyn Robotics*

JustoCat is a little more simple: he feels when he is being stroked and cuddled, and therefore purrs, is warm, you can feel him shudder when he purrs. One advantage is that the fur coat is removable to enable washing. Unfortunately that is not possible by Paro.

In addition to these, toy animals are often used.

An example of this is the *Wowwee Alive* series, in which a seal can be found, he costs around € 40. The robot is indeed interactive ( he reacts to touch by making sounds and movements), but he of course does not have the same advanced technology as Paro. He is also quite a bit smaller and lighter ( not even half a kilo), which can be seen as an

advantage for people who do not have much strength in their arms.



*Fig. 3. Paro (left) and the seal by Wowwee Alive.*



*Fig. 4. Lulu from Furreal Friends*

Another frequently used series is that of *Furreal Friends* manufactured by Hasbro. It is the cat 'Lulu', which costs approximately € 50 that is most frequently used. This cat reacts to touch by purring and lifting his front paw so his belly can be stroked.

The toy animals are easy to use especially in group activities, when several robotic animals are used simultaneously. They will not have the same impact as Paro and JustoCat, due to the fact that they are so light and make more mechanical sounds. The “Feeling of a toy” that springs to mind by the user is strengthened by the fact that there is an on/off switch under the cat’s fur which can be pulled or zipped open. The correct switch is not always easy to find there.

Unfortunately the toy animals are only available for just a few years in the toy trade. However in later years there is a plentiful supply via Internet trading sites such as EBay.

## **A few practical instructions**

### ***Paro***

The robot is quite easy to use. A small on/off switch is hidden underneath the tail. He makes a sound when he is switched on and when switched off the front fins separate a little and the head droops a little too ( a sleeping position).



The batteries are recharged via a charger which looks like a dummy, it takes about 4 hours to fully recharge him.

Between the dummy, which you put in his mouth, and the plug is a black transformer ( small box) with 2 lights. When one Lamp is lit the plug is working and if both lamps are lit the robot is being recharged. The robot is then still usable and can be switched on and functions in the normal way.

The cat's fur is antibacterial and has a dirt repellent layer, but when in continuous use for a long time the fur will discolour and it will lose its repellent function. The robot may not be cleaned with water or other cleaning materials but must be cleaned by experts with the correct equipment.

### ***JustoCat***

These robots have the advantage of being able to remove their fur coat to allow it to be washed. A second fur coat is supplied as standard issue and even if both coats get dirty beyond use it is easy to order a new one.

The on/off switch is found under the belly of the robot and must be pushed in for quite some time (5-10 seconds).

The charger with transformer can be plugged in to enable him to be charged up in about two hours. During this time JustoCat is able to be used.

### ***Furreal Friends and Wowwee Alive***

The toy animals do not usually have a removable coat, but they can be cleaned with a disinfectant spray ( even though, the coat will discolour with time). The button to switch them on and off is always hidden , so this means that the fur ( usually under the belly ) must be pulled or zipped open to reach it. The batteries can usually be found here too.

The toy animals will as a rule only move or make sounds after they have been touched.

## 4. Directions for Activities

### Who for?

- For people with a form of dementia, who live at home or in a care home.

Cuddle robots do not always have the desired effect on everybody. It is difficult to point out which person is or is not suitable for the introduction of a robot. Cuddle robots are in principle suitable for everybody, as long as it matches the needs and wishes of the client. In practice this calls for insight into the person and situation from the care professional.

Based on practical experiences it seems that cuddle robots have **the most effect** on people:

- In the later stages of dementia (phase 3);
- Who have or have had (domestic) animals themselves;
- Who have difficulty with human contact.

## Who by?

- By all the various departments in the care of dementia which come to mind, e.g. carers, nurses physiotherapists , psychotherapists occupational therapists and volunteers or other non-professionals..
- By a regular and for the client well known /trusted care worker.
- By care volunteers . It is important that they are kept up to date on how the robot works and what the experiences of the care professional working with that specific client are.

It is important not to leave the client alone with the robot. This is to prevent any escalation of or negative effects. The client's feelings and emotions may run high during the activity with the cuddle robot. It is therefore important that there is always someone close by to guide and support the client when using the cuddle robot

## What is needed?

### ***Resources***

In practice there are no special resources necessary to use cuddle robots other than the robot and its accessories (storage and charging equipment).

### ***Knowledge and skills of the care professional***

It is important for the care professional to know how the robot works and how it could/ should be applied in practice. This is to ensure the safety and most effective way of using the robot during the activity . Furthermore, as mentioned earlier , the knowledge and experience with the target group, of the care professional is indispensable when working with the cuddle robots. When and how to use the robot depends greatly on the insight of the care professional.

### ***Policy of the care institution***

It is recommended that a protocol be set up for the use of the cuddle robot within the care institution, so that professionals all use the same method.

## **Where?**

### ***The activity***

It is recommended to offer the robot to the client in a safe and trusted environment. In most cases this will be their own room or a communal living room which is the most suitable.

### ***The robot***

It is recommended to keep the cuddle robot in the same place all the time. It will depend on the client(s) and/or residents of the care home which option is the best. The robot can:

- Remain in view of the client(s), e.g. in a cage or a basket. It is possible to choose free access (clients are allowed to pick up the robot whenever they wish) or access at specific times or when the client(s) request it.

- Remain out of view of the client(s), e.g. in a cupboard or in the staffroom.

## **When?**

- In moments of unrest, sadness, aggression: to calm down the clients.
- In moments of inactivity: if wished to stimulate the clients.
- As an aid to make contact with the clients should they have become introvert.
- When family or visitors come round : to stimulate the client, reduce tension, to improve the atmosphere, to provide a stable situation and/or as a means of contact.

### ***Duration of the activity***

In general it is recommended to let the activity last no longer than 20 minutes. Of course the duration depends on the person and the situation. It is important to be aware of overstimulation of the client due to the sometimes

unexpected emotions and behaviour caused by contact with the robot.

## **How?**

### ***Possibilities***

There are many ways in which the cuddle robots can be applied. Here once again the most suitable way depends on the person and the situation. The advice would be to experiment with this. See what works for which client and in which situation and keep a report of this. A few examples of more specific methods of working will be given in the next chapter .

### ***In a group or individually?***

Both are possible. The advantage of working with an individual client is that the care professional can more easily adjust the activity to the needs of that client or situation. While working with groups it has been noticed that some clients have difficulty in “sharing” the robot, therefore that they do not want to give him to another



person. Experience teaches us that offering the robot in a group has a positive effect especially on the communication and interaction within the group and thus improving the atmosphere in it.

## **Methods of working**

A few possible methods of working for using the cuddle robots will now be given. After drawing attention to several points for attention we will give an example of the method of working by a group activity and an activity with an individual client in two different situations: the stimulation of a client and the prevention of unrest by a certain care procedure.

### ***Points for attention***

Attention should be paid to the following points before during and/or after the activity:

- Take care that the robot is fully charged. Clients may become confused or emotional if the robot breaks down during an activity.

- Remain with the client during contact with the robot in order to guide and counsel the client should feelings and emotions arise.
- Remain in contact ( talk with and/or touch) the client and robot during the activity.
- Robot or living being? Allow the client to decide whether or not the robot is treated as a robot, cuddly toy or a real animal. If the client asks what is it, reply for example with “What do you think it is?”. This will enable the perception of the client of their surroundings to be adhered to as closely as possible.
- Evaluate the activity( possibly with the client) and report about it so that this can be taken into account during the following contact moment with the cuddle robot.
- Give the robot ( possibly together with the client) a name or use the type of animal (e.g. seal, cat or dog).

### ***Group activity***

- Introduce the cuddle robot to the group by saying for example: “Look what I’ve got here”
- Lay the robot in the middle of the group and then watch and wait to see what the reactions are.
- Describe the robot : say what he likes, what he looks like and what he does.
- Talk to the robot yourself and stroke the animal.
- Ask the participants if they would like to stroke or hold the robot.
- Possibly introduce the robot again when you lay him in the lap of a client.
- Ask the participants what they think of the robot.
- Say good bye to the robot together by saying for example : “The seal is going back in his basket now to sleep” or “See you again next time seal”.
- Allow each participant to say good bye in his/her own manner.

## ***Activities with individual clients***

### **Stimulation of the client**

- Introduce the robot by saying for example “look Mr/Mrs ...., This is a seal, he is coming to sit with you for a while. You can pick him up or you can leave him on the table”
- Lay the cuddle robot down during the activity so that the client is able to touch him whenever he/she wishes.
- Keep reminding the client that the cuddle robot is there.
- Describe the robot: what he does, what he looks like and what he likes.
- Talk to the robot yourself and stroke the animal in order to encourage the client to do the same.
- Ask the client what he/she thinks of the robot.
- At the end of the activity, say good bye to the cuddle robot together by saying for example “Seal see you next time. Would you like to say something to the seal Mr/Mrs.....?”

### **Prevention of agitation during the care activity**

- Introduce the cuddle robot before the care activity takes place. For example by saying : Look Mr/Mrs .. , this is a seal, today he is going to ..(go to the toilet) with you”.
- Make sure that the client is able to touch the cuddle robot during the care activity, by for example sitting him on a stool next to the client.
- Do not just talk to the client but also talk to the robot as well. Remind the client that the robot is there. Talk about the robot and involve him in the activity in order to distract the client, if necessary.
- Say good bye to the robot together at the end of the activity.

# Examples from the field

## Examples of positive behaviour

When observing the client during contact with the robot the following positive behaviour was noted:

- Cuddling;
- stroking;
- talking to the robot;
- laughing;
- giving kisses;
- reacting to the sound of the robot;
- singing songs;
- thinking of a name for the robot;
- showing the robot to others;
- wanting to or telling others about the robot.

## Examples of less positive behaviour

When observing the client during contact with the robot the following less positive behaviour was noted:

- not wanting to touch the robot;
- being afraid (e.g. that the robot will bite );

- not wanting to have anything to do with the robot/ignoring it;
- hitting the robot or throwing it on the floor;
- not wanting to share the robot with other clients ( during a group activity);

## **Experiences of the care professionals**

A care professional who has experience of using the seal robot Paro with a group of inhabitants with a form of dementia says the following:

*“[...] it is a nice animal to work with. Only it is a shame that you don't know how to treat it. Nothing is known about it yet. In the beginning we had to look for the best way of using Paro. This also depends on the elderly. One elderly person can react in a natural way, another less so.*

*It has been decided to have a supervisor in attendance at all times. In this way there is always someone there if things seem to be going wrong. Furthermore somebody always introduces Paro with the words: “here comes*

*Paro again". The elderly then know that he is coming and react to him. It is important to lay Paro in someone's lap or put him on the table whilst talking*

*By bringing Paro to in someone you can see how they react and can start up a conversation. We see that the elderly become more animated when they are using Paro. Because one of us is always there we are able to hold a conversation. Sometimes the elderly show emotions through talking with Paro. Or they think how Paro feels himself. There is a good chance that they feel the same way. You can talk about this with the elderly or possibly with their family*

*Paro forms the topic of conversation and helps with contact between the client and the supervisor which helps to begin a conversation and move it along. It is important that there is always a supervisor in attendance, so situations are unable to get out of hand and conversation can be made.*



## Practical situations

The following are a few examples of situations which occurred in the field during sessions with the seal Paro.

1. Regarding a woman (with a light to moderate form of Alzheimer) during the first group session with Paro. She liked him but she is a little afraid of him. She thinks it is nice to look at him but she will not touch him or allow him to be closer. The care professional asked if she wanted to stop with Paro and go to a different room, but she wanted to stay and just keep looking at him. After several weeks of frequent contact with Paro in group sessions the woman likes him even more. After three months the woman has come to like him so much that she does not want to lose him. She hugs Paro tightly and says she wants him to be with her forever.
2. During the sessions with people with a light to moderate form of dementia a woman wants to see what is under Paro's fur. She turns the seal upside down and tries to loosen the Velcro. The woman next to her becomes very agitated and says that she must not

hurt Paro. The women have a different vision of what Paro is and that causes tension between the clients in this situation.

3. Regarding a woman (with a severe form of Alzheimer) who has limited contact with her surroundings. She makes eye contact but does not like physical contact. When the care professional introduces Paro to her ,she tentatively looks him in the eye and hesitantly touches him. She does not seem to recognise him, but with every new session she immediately likes him and makes contact with the seal.
  
4. During a session a woman (with a light to moderate form of dementia) begins to play with Paro . She looks him in the eye and laughs at him while the care professional talks with her about seals and what they eat. Suddenly the woman says sadly that Paro is just a toy and not a real seal. The care professional says that this is true and asks if she wants to stop. The woman shakes her head . She thinks it is nice to be

with Paro and to talk about him with the professional. She does not want to stop just because he is not a real seal. At the end she jokes and says “he is actually cleaner than a real seal because does not stink of fish.!”.

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## URL's

**<http://www.robots.nu>** – A Dutch site with a listing of available robots

**<http://www.hasbro.com/>** - Site of Hasbro, the manufacturer of Furreal Friends

**<http://www.wowwee.com/>** - Manufacturer Wowwee of the Wowwee Alive series.

**<http://www.parorobots.com/>** - The site of seal robot Paro

**<http://www.focalmeditech.nl/>** - The Dutch distributor of Paro

**<http://www.justocat.com/>** - Site of the Swedish JustoCat.

**<http://www.newfriends.nu>** – The project site on social robots used in therapy of the Robotics research group of Windesheim University

**<http://www.technologyincare.nl>** – The home of the Technology in Care research group of Zuyd University.



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