

LAUGH improves wellbeing, happiness and quality of life of people living with advanced dementia

People living with advanced dementia become increasingly withdrawn, isolated and 'locked-in'. Since there is currently no cure for the devastating disease, finding new ways to improve a person's quality of life and help them live well with the disease are urgently needed. The Ludic Artefacts Using Gesture & Haptics (LAUGH) research project, led by **Professor Cathy Treadaway** at Cardiff Metropolitan University, aims to do just that – through designing innovative playful objects that amuse, comfort, engage and bring joy to people living with advanced dementia.

Dementia is one of the biggest challenges facing society today. 46 million people globally have been diagnosed with the debilitating condition that can affect memory, cognition, perception, behaviour and cause profound anxiety and confusion. As the disease progresses, people living with dementia often become increasingly withdrawn and need specialist care in residential or nursing homes. By 2050, the number of people living with the disease is predicted to rise to 131.5 million.

Currently there is no cure for dementia and so finding ways of improving the quality of life of people living with the disease is more important than ever. There are very few products available that have been explicitly designed to assist with the care of people in the later stages. Cathy Treadaway, Professor of Creative Practice at Cardiff Metropolitan University, is the Principal Investigator of LAUGH (Ludic Artefacts Using Gesture & Haptics) project that is designing for people living with advanced dementia. The project aims to develop playful objects to stimulate fun, joy and laughter and promote 'in the moment' sensory experiences. Ludic or playful play has been shown in Prof Treadaway's previous research to have positive benefits to health and wellbeing. LAUGH research aims to shed light on the various ways in which playfulness, hand-use and gesture can stimulate positive emotion. This knowledge is being used to inform the design of playful

objects to support wellbeing in advanced dementia care.

LAUGH is a three-year international interdisciplinary design research project based in Wales, at Cardiff Metropolitan University's Centre for Applied Research in Inclusive Arts and Design (CARIAD), and is funded by the UK Arts and Humanities Research Council (grant: AH/M005607/1). The project is partnered by leading charities in the field and the research is guided by an expert group of advisors with relevant dementia experience, working in health and social care.

COMPASSIONATE DESIGN

LAUGH researchers use a 'Compassionate Design' approach. This is a method of designing, pioneered by Treadaway that places loving-kindness at the heart of the design process. It advocates that designs for advanced dementia should be personalised, to help the person retain a sense of self and dignity; sensory, so they stimulate a persons' senses and encourage them to experience

being 'in the moment' (not requiring memories of the past or thoughts of the future to enjoy them); and connecting, so that the person living with dementia remains connected to the world and to the people around them.

Compassionate Design is influenced by Positive Psychology, a field of psychology that is concerned with positive aspects of human life, such as happiness, wellbeing and flourishing. Research has shown that spontaneous playfulness, fun and laughter have enormous wellbeing benefits for all, including people living with dementia. Studies have also shown that purposeful activities, involving the hands, can boost positive thinking and lift depression.

LAUGH WORKSHOPS

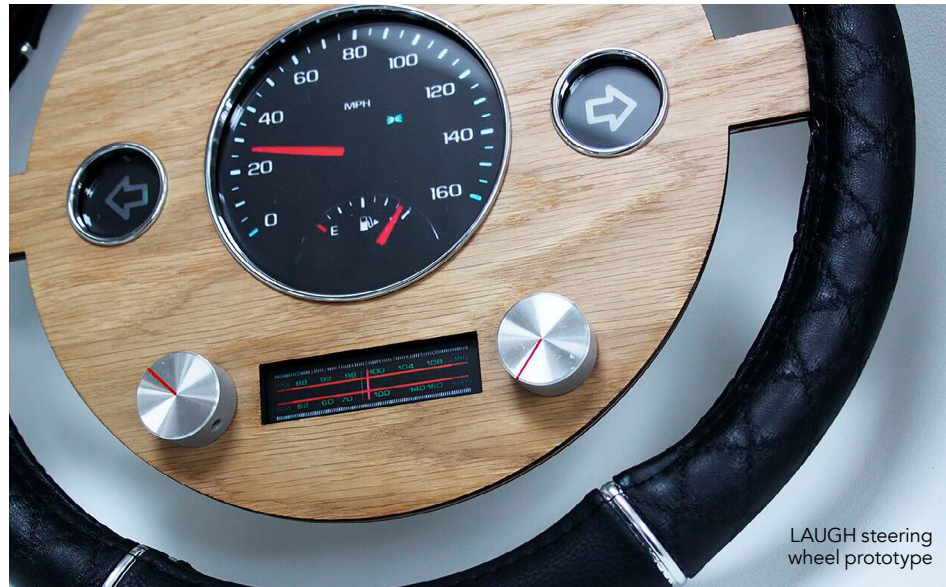
LAUGH researchers work with an interdisciplinary team of experts including health professionals, academics, carers, care managers, representatives from dementia charities, technologists, artists, designers and people living with dementia. Six participatory creative workshops have been held to explore the importance of playfulness, memory, positive emotion and hand use in designing for advanced dementia. Methods used by the research team have encouraged participants to be creative and playful in order to reflect on their own personal experiences, and those of people living with advanced dementia with whom they live or work. Working in conjunction with the project partner, Pobl Gwalia Care, and in collaboration with residents' families and carers, the LAUGH team have developed and evaluated six playful hand-held objects for people living with advanced dementia. Each object is highly personalised and has been informed by the preferences and life history of the person for whom the object was intended. Three examples of these are described in the following sections.

HUG

Many residents living with advanced dementia are chair- or bed-bound and due to their

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LAUGH wearable 'Hug' prototype



LAUGH steering wheel prototype

communication difficulties often receive few visitors. The LAUGH team designed 'Hug' for a lady who was considered by her carers to be in the final stages of the disease. She talked and ate little, was chair-bound, and no longer socialised with the other residents. Her carers told the research team that what she needed most of all was a hug. In response to this brief, a long-armed, soft cushion-like wearable object was developed, with the hands and feet weighted to replicate the sensation of a hug. The object was made out of a furry fleece textile that is soft and comforting to touch. 'Hug' has a simple floppy head with sleepy eyes, nose and mouth; the weight and form is evocative of a sleeping child. Digital technologies were used to replicate the sensation of a rhythmic heartbeat, and when moved, sensors activate a microcontroller and speakers inside the body cavity to play the residents' favourite music. 'Hug' has been a huge success from the outset. As soon as she received 'Hug', the resident snuggled into it, rested her head and closed her eyes to enjoy the sensation of the heartbeat and music. A few moments later, to the amazement of the care staff, she spoke a few words for the first time in many weeks. In the subsequent three months, the research team returned to the care home to qualitatively evaluate the object

and its affect on the resident. Professional care staff in the care home corroborated the research teams' observations of positive change, reporting that they were convinced that 'Hug' had improved the resident's wellbeing. They reported a significant drop in her number of falls, her appetite had returned, as had her desire to communicate and socialise with other residents. Her hands that had initially been twisted into tight fists had opened and relaxed over the three months of the study and she had regained the use of her fingers.

STEERING WHEEL

The team designed and created an imitation steering wheel for a male resident who had worked as a car mechanic and had loved driving throughout his active life. The steering wheel contains electronics that cause gentle vibration when held, replicating the sensation of a running car engine. It also has working indicators, a dashboard with winking lights and a tune-in radio to play preselected favourite music. The resident was able use the object while sitting in his wheelchair or when confined to bed. On one occasion observed by the research team, the resident drove his carers on an imaginary road trip to the seaside to buy ice cream. The patient's body language

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Q&A

Why is it important to research how to improve the wellbeing of people living with dementia, rather than perhaps looking at cures for the disease?

While scientific research is busy seeking for a cure for dementia, there are many thousands of people who are currently living with the condition. Even if a cure is found tomorrow, it is likely to be some years before treatments can be rolled out in the community. In a compassionate caring society, each individual life is of value. It is vital that we should be concerned with enabling those with a diagnosis of dementia to live well with the condition and have the best quality of life possible.

What has your research shown about how different objects can improve wellbeing, encourage people living with dementia to live in the moment and help them make connections with people?

By creating bespoke highly personalised objects we are able to help maintain the dignity of the person living with dementia, even when they no longer remember for themselves who they are. Their personal preferences, such as favourite music, colours, hobbies that once gave them pleasure, can influence the design that can stimulate pleasurable emotional memories.

and facial expressions clearly showed that he was having a very good time. Carers noted that this joyful experience resulted in the most interaction and communication they had ever had with the resident.

FIDGET JEWELLERY

People living with advanced dementia often gain great pleasure from fiddling with physical objects, as the sensory properties are satisfying, soothing and can help calm agitation. Interesting textiles, fabrics and threads, as well as buttons, zips and poppers can aid 'in the moment' sensory experiences, especially for people who are chair- or bed-bound and unable to physically do very much. Four pieces of bespoke hand-held jewellery were designed for a resident who particularly liked beads and had enjoyed craft activities like sewing and knitting throughout her active life. In the first evaluation, the carer noted

By focusing on sensory experiences, particularly touch and sound, it is possible to keep experiences 'in the moment' so that they don't rely on memory of the past or require cognitive processes that are compromised in dementia.

How do you approach the design of these objects?

Our design process places compassion for the person at the heart of the process. Initially we meet the person living with dementia, their families and professional carers to develop a 'portrait'. This includes personal history, significant life events, career, family information and personal preferences. A co-design process, involving key experts such as carers, health professionals and technologists is used to scope potential ideas and then the LAUGH researchers use their design skills to refine ideas and develop prototype objects. These are tested, first by the carers for safety and appropriateness, and then evaluated in a series of visits to the person living with dementia in the residential care home.

What impact has your work had on the people living with dementia and care home personnel with whom you have worked?

The work impacts on everyone involved. The care professionals and members of the

research team have observed how the playful objects have improved the wellbeing of the people we have been working with. Sometimes the changes are small and momentary but others seem to be significant and ongoing, including reduction in falls, increased appetite, greater communication – and laughter! Carers report positive responses to the objects, not only because they see improved wellbeing of the residents, but also because they assist them to perform their caring role, making communication and interaction easier.



LAUGH bespoke fidget jewellery

Without the contribution of our expert advisors and participants, and the skill and expertise of the research team, none of this work would have been possible.

What aspects of the research – be it the findings or experiences you've had along the way – have surprised you the most?

Probably the most surprising aspect of the research has been the huge impact relatively simple playful objects have had on people living with such a complex and distressing disease. The power of playfulness and laughter is enormous and it is vital for wellbeing. The people we have been working with are nearing the end of their lives and it has been a real privilege to work with them, their families and carers. Without the contribution of our expert advisors and participants, and the skill and expertise of the research team, none of this work would have been possible.

Detail

RESEARCH OBJECTIVES

Professor Cathy Treadaway's research has evolved from her practice as a designer and her interest in technology and creativity. Previous projects explore aspects of creativity including: playfulness, materiality, hand-use and sensory experience. This has led to her current research examining playfulness in adult life and its relationship to wellbeing. She leads a research team at the Centre for Applied Research in Inclusive Arts and Design (CARIAD) who are designing playful objects to enhance the wellbeing of people with advanced dementia.

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COLLABORATORS

University of Technology Sydney (Dr Gail Kenning); Coventry University (Dr David Prytherch); CARIAD, Cardiff Metropolitan University (Dr Jac Fennell, Aidan Taylor, Dr Amie Prior and Prof Andy Walters); Pobl Gwalia Care; Ageing Well in Wales, Office of the Older People's Commissioner for Wales; My Home Life; Alzheimer's Society; Age Cymru; Ty Hapus; Dementia Positive

BIO

Cathy Treadaway is Professor of Creative Practice at Cardiff Metropolitan University and a founder member of the Centre for Applied Research in Inclusive Arts and Design (CARIAD). She is a Fellow of the Royal Society of Arts and Principal Investigator for the AHRC LAUGH design for dementia research project.

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