

Open Doors: designing playful objects for dementia

Jac Fennell, Cathy Treadaway, Aidan Taylor

jfennell@cardiffmet.ac.uk, Cardiff Metropolitan University, UK
ctreadaway@cardiffmet.ac.uk, Cardiff Metropolitan University, UK
artaylor@cardiffmet.ac.uk, Cardiff Metropolitan University, UK

Abstract: This design-based submission comprises a prototype design for a playful object for use in dementia care and the 'Open Doors' documentary video that explains the underpinning research collaboration. LUMA is a hand-held playful object, designed for people living with advanced dementia, and is one of six design outputs from the recently completed AHRC-funded LAUGH project. This qualitative design research used participatory and co-design methods and Compassionate Design methodology to investigate how playful objects can be designed to support the wellbeing of people living with advanced dementia. One of the major challenges facing society is how to provide appropriate care for the increasing numbers of people living with dementia and to ensure that they are able to live well, right until the end of their lives. The aim of the research was to investigate ways to stimulate, engage and bring pleasure to people living with advanced dementia through the creation of simple hand-held devices. LUMA is an object that was developed in collaboration with members of the Men's Shed in Tondur. The accompanying 'Open Doors' film explains how the LAUGH design team exchanged their digital fabrication expertise with members of the Men's Shed who were skilled in hand crafting wooden objects. The creative collaboration resulted in LUMA, a hand-held interactive object that brings the *outside* experience of nature *inside* through touch, light and sound.

Keywords: *Design; wellbeing; community; dementia*

1. Introduction

LUMA is a hand-held playful object, designed for people living with advanced dementia, and is one of six design outputs from the recently completed AHRC LAUGH project. This qualitative design research used participatory and co-design methods and a Compassionate Design methodology (Treadaway, Taylor & Fennell, 2018) to investigate how playful objects can

be designed to support the wellbeing of people living with advanced dementia. The Compassionate Design methodology has been developed directly from the LAUGH research and focuses on three key components when designing for people with advanced dementia: design that stimulates the senses, that is highly personalised and supports connection between people. Above all, the Compassionate Design approach places loving kindness at the heart of everything, so that designs focus on the individual and provide sensory stimulation that connects them to others and the world around them.

A major challenge facing society today is how to provide appropriate care for the increasing numbers of people living with dementia and to ensure that they are able to live well, right until the end of their lives (Landeiro et al., 2018; Ógáin & Mountain, 2015). People in society with the greatest need for good design are often the most vulnerable, those who have difficulty expressing what they want and need, due to physical, sensory or memory impairment (Treadaway et al., 2018a). People in the advanced stages of dementia are often unable to initiate social interaction and have limited verbal communication; they may be chair or bed-bound and sit for many hours with very little to do. The aim of the research was to investigate ways to stimulate, engage and bring pleasure to people living with advanced dementia through the creation of simple hand-held objects. Each object was co-designed by people living with dementia, their professional carers and family members, craft and technology experts, and the LAUGH design team. This has produced a range of bespoke playful objects that bring sensory fun, in-the-moment joy and connection for people affected by dementia (www.laughproject.info).

LUMA is one of the six objects designed by the LAUGH project. LUMA was developed in collaboration with a gentleman living with dementia, members of the Men's Shed in Tondur and the LAUGH design team. This Men's Shed organization exists to support mental health in the community and reduce loneliness and isolation. The collaborative project was included in the Gwanwyn festival of creativity and ageing in 2018 and a film titled 'Open Doors', funded by the charity Age Cymru and Fab-Cre8 Cardiff Metropolitan University, was made to document the project. 'Open Doors' explains how the LAUGH design team exchanged their digital fabrication expertise with members of the Men's Shed, who were skilled in hand-crafting wooden objects. The shared making experience opened up dialogues and presented new opportunities for research, while informing discussions about the benefits of creativity for wellbeing. This creative collaboration resulted in LUMA, an interactive hand-held object that brings the *outside* experience of nature *inside* through the potential to modify light, colour and sound (Treadaway et al., 2018b).

2. Description of the design

LUMA is a playful object that combines the hand-craft expertise of the craftsmen of Men's Shed with the digital fabrication processes used by the LAUGH designers using FabLab Cardiff. LUMA is an interactive hand-held wooden object inspired by the form of a garden bird feeder. When held, a central tube decorated with laser-cut garden bird silhouettes is illuminated, as seen in Figure 1. As the outer wooden ring slides along the tube, the lights change colour and bird song is activated. There are small speakers in the wooden end pieces and the object is rechargeable.

LUMA was designed with, and for, a gentleman living with advanced dementia with severe cognitive impairment and limited motivation, living in residential care. It is designed to be hand-held, to rest in the lap and stimulate the senses through the potential to change light and sound through micro movements of the hands. The design of LUMA developed and evolved during a number of visits to the residential care home, Men's Shed and FabLab Cardiff. The final design was informed by observations of how the gentleman interacted with the LUMA prototype and discussions with care staff and family members. This was an iterative co-design process between the gentleman, Men's Shed and LAUGH design team.

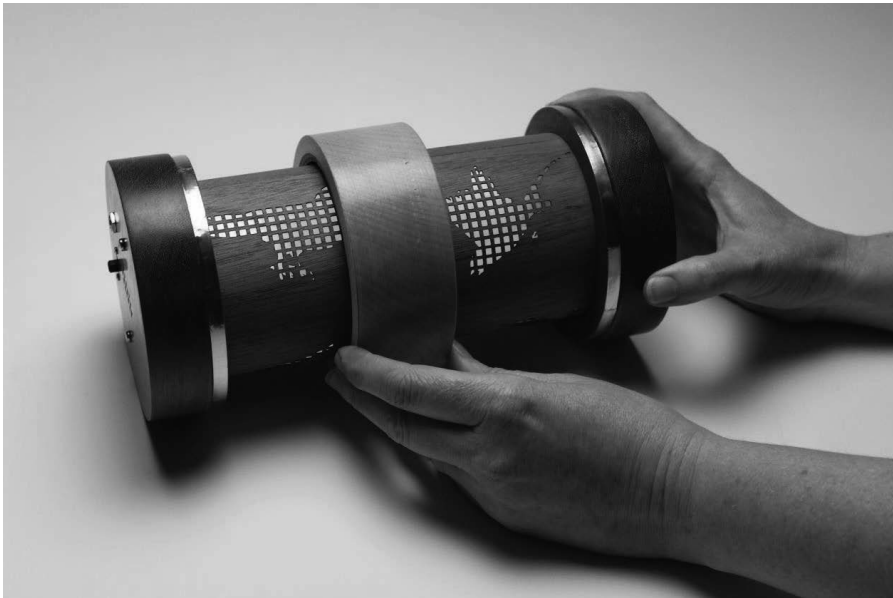


Figure 1 LUMA: a hand-held device for people living with advanced dementia

Digital and hand-craft processes have been used to make LUMA and these include laser cutting, Computer Numerical Controlled (CNC), 3D printing, wood turning and electronic circuit design and fabrication. The craftsmen from Men's Shed in Tondur, turned the wooden rings and the LAUGH design team used digital fabrication technologies in FabLab Cardiff to laser cut the bird silhouette design and CNC the end pieces. The design of the artefact was emergent, dynamic and heavily influenced by the processes, equipment, materials and techniques explored during the co-design process. Knowledge and skill transfer between the design researchers and members of the Men's Shed feature in the 5-minute 'Open Doors' film that accompanies LUMA. The film documents the collaboration through the visits made by participants to each other's making spaces. Interviews with the participants offer insights into the value of creativity for wellbeing and the benefits of collaborating to design for dementia.

LUMA will be evaluated in a residential care home later this year. Other objects designed within the LAUGH project have been evaluated using a mixed methods approach (Kenning et al. 2018).

3. Complementary Data Description

Accompanying LUMA is a 5-minute film titled 'Open Doors' which documents the collaborative project and explains the making process.

4. Technical Information for Exhibition

LUMA is an artefact crafted from wood and designed to be hand-held. For the purposes of the exhibition, the object can be displayed sitting in an acrylic cradle which will be provided. LUMA is interactive and has custom-built electronics that vary the light illumination on the central tube and the bird-song heard through the integrated speakers on the two wooden ends. LUMA is 30cm in length and 12cm wide.

The electronics are self-contained and hidden from view as they are housed in the central column. They require *no* additional set-up or connectivity. LUMA has an A/C mains power cable (supplied) and will require a power outlet whilst on display in the exhibition. The power cable is plugged in to one of the wooden ends of LUMA. There is an on/off switch located next to this so that LUMA can be turned off when not in use.

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