

**tover**<sup>®</sup>  
purposeful play

**Tovertafel:  
supported by  
scientific research**



# Research at Tover

Tover specializes in developing interactive solutions that have a positive impact on the quality of life of people living with dementia. It is important to us that everything we create has positive effects, such as improving social interaction, promoting physical and cognitive activity and more benefits related to quality of life. That is why research continues to play a central role in developing and improving our products and services. This stems from our beginnings in 2015, when our CEO and founder Hester Le Riche developed the first Tovertafel as part of her PhD project. Today, research remains at the heart of everything we do.

To ensure our solutions have the intended effects, we work closely with end-users, healthcare professionals, family members, and other experts to understand the needs of our target groups. We also conduct research studies and collaborate with independent research partners to gain insight into the benefits of playing with our products, and their effects on behavior and emotions. This not only allows us to improve our portfolio, but also helps us to identify new target groups and increase the impact of everything we do on people living with dementia.

## Our approach

There are three different types of research that we conduct at Tover,

- **Effect studies**  
Carried out by third-party organizations to evaluate the extent to which the Tovertafel achieves the desired effects.
- **Exploratory studies**  
Conducted by us internally and sometimes in collaboration with external researchers to look at our target group and the context in which the Tovertafel is used. This helps us get to know our target groups better and tailor the Tovertafel and its games to their needs. These studies also help us to identify new target groups and opportunities for new products.
- **Implementation studies**  
Can also be conducted by Tover internally and in collaboration with external researchers to determine the factors that influence the use of the Tovertafel in specific environments. These insights are then used to improve our products and services, as well as better advise customers in using the Tovertafel.

Let's take a look at a few examples of studies related to the Tovertafel:



## Effect studies

### Playful Design for Activation. Co-designing serious games for people with moderate to severe dementia to reduce apathy

*Hester Le Riche*

Hester Le Riche is not only one of the three founders of Tover, but also the creator of the Tovertafel. The serious games system emerged as the result of her PhD project at the Technical University Delft in the Netherlands.

The core objective of her project was to design a playful, stimulating product for nursing home residents in the mid to late stages of dementia. This is because people living with dementia often lose the ability to engage in self-initiation, resulting in less physical activity and posing a threat to their quality of life.

Hester's PhD thesis outlines the research she conducted into her target group and their environment to form the basis of the design for the Tovertafel. It also includes an effect study in which six nursing home

residents were observed while playing with the Tovertafel, as well as in two other control environments. Despite its small scale, the study showed that care staff observed an increase in physical activity, social activity and joy in the nursing home residents that were playing with the Tovertafel compared to the other two environments, as well as a decrease in sadness.

Hester's study was the first of its kind to indicate that the Tovertafel is capable of activating nursing home residents with dementia and reducing apathetic behavior while playing with the Tovertafel. It also suggests that the Tovertafel positively affects residents' emotions. Due to its smaller scale, additional studies have and will continue to be carried out to increase the evidential value of the effects of the Tovertafel.



*“The residents are fascinated with the movement and the light and the Tovertafel seems to really calm people down who could otherwise get agitated”*

Kate Cooper, Activities Coordinator,  
Littlebourne House, UK

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## The quality of life of nursing home residents with dementia before, during and after playing with the Tovertafel

*Leonie Bruil et al.*

A few years following the completion of Hester's thesis, nurse practitioner Leonie Bruil and a group of other researchers set up a new effect study. Their goal was to investigate the effects of the Tovertafel on quality of life.

The study observed 34 nursing home residents in the mid to late stages of dementia. It took place throughout a period of three weeks and focused on 15-minute game sessions on five consecutive working days, as well as in two control conditions. As they are unable to communicate about their own quality of life, this was measured by caregivers using validated observation instruments.

During weeks one and three, the nursing home residents did not play with the Tovertafel, however, they did play with it during week two. At the end of each week, the caregivers reported back about the quality of life of all participants by using the QUALIDEM - a dementia-specific quality of life instrument.

Week two of the study also saw the use of the *Discomfort Scale - Dementia of Alzheimer Type* (DS-DAT) to observe the residents. The conditions were:

- Playing with the Tovertafel
- Drinking coffee in the living room
- Sitting in the living room

The researchers measured a higher quality of life in the week that the nursing home residents played with the Tovertafel, and in the week after. They also observed lower levels of discomfort whilst engaging in playing with the Tovertafel compared to the other activities. In conclusion, the study shows that the Tovertafel improves the quality of life of nursing home residents with dementia.





## The use of interactive tables in promoting wellbeing in specific user groups

*A. Good et al.*

Researchers from Portsmouth University (UK) carried out a qualitative research project to investigate the impact of the Tovertafel on nursing home residents with dementia, the care professionals looking after them, and their relatives.

They interviewed 12 care professionals that worked in a nursing home, and the results showed that the Tovertafel has a positive impact on residents, care professionals and family members.

The insights from the interviews indicated that the Tovertafel improved the residents' state of mind, reduced their apathy and restlessness, and increased their levels of engagement. Another finding was that the Tovertafel improves the relationship between residents and care professionals, and residents and their family members, as it enables them to engage in playful activities together. The study showed that the Tovertafel increases both the quality and quantity of visits from family members when residents and family members play with the Tovertafel together during a visit.

## The effect of the Tovertafel on quality of life in elderly people with mid to late stage dementia

*Manon Kuipers*

As part of her Master's degree in Vitality and Aging at Leiden University Medical Center, Manon Kuipers wrote her thesis about the quality of life and the Tovertafel. Her research first involved looking at definitions of quality of life for people who are in the later stages of dementia. She then shared her findings with care professionals who were working with nursing home residents with dementia in order to gain insights into what they think their residents define as "quality of life".

The caregivers indicated that this would be the ability to make something of one's life and enjoy it. Manon's research also showed that there are many factors that contribute to quality of life such as having something to do, positive emotions, being accepted by your loved ones, safety and independence.

The scope of Manon's research also extended to the Tovertafel and its impact on these factors. According to the care professionals Kuipers interviewed, "social relationships" and "positive emotions" were the two categories most clearly impacted by the Tovertafel. This is due to the fact that the Tovertafel is a tool that brings people together who would otherwise have minimal social interaction. Manon's study concluded that the Tovertafel can be used to improve the quality of life of nursing home residents with dementia by improving the users' positive emotions and increasing social interactions.



*"They laugh, smile, and actively participate by leaning in to get their body and hands closer to the objects. [...] Ultimately, their eyes light up when they have accomplished the task at hand. They are having fun!"*

**Cindy Wiegand**, Life Enrichment Director,  
Wheelock Terrace, US

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## The Tovertafel: Evaluation of the Impact of the activating game on the Caregivers of People with Dementia

Yunsheng Su

Yunsheng Su, a Master's student at University College London, carried out this small-scale qualitative study which investigates the impact of the Tovertafel on the well-being of healthcare professionals and relatives of people living with dementia - both at home and in the nursing home. Yunsheng interviewed a partner, one family member and two care professionals to analyze its impact in these environments.

In order to investigate the impact of the Tovertafel at home, a Tovertafel was placed in a participants' dining room for a period of three months. To understand the effects of the Tovertafel in the nursing home, Yunsheng conducted a survey among care professionals.

The survey considered both the impact of the Tovertafel on the emotions of their residents with dementia, as well as their own work as caregivers. The participants reported that the Tovertafel provides a sense

of calm during their workday as they are less likely to be called on. They also shared that working with the Tovertafel helps to strengthen the relationship between themselves and their residents.

In terms of the impact that the Tovertafel has on relatives of people living with dementia, Yunsheng's research showed that the partner-participant was happier and less stressed when playing with the Tovertafel. The partner also shared that the positive emotions that the Tovertafel evokes in his partner also have a positive influence on his own emotions.

Overall, Yunsheng's research indicates that the Tovertafel has a positive influence on people caring for people with dementia, including family members as well as care professionals. It also concludes that it strengthens positive emotions and reduces negative emotions in both residents and care professionals.

## The Tovertafel in relation to the quality of care. A qualitative study on how Tovertafel can improve the quality of care in Dutch nursing homes

M. De Vries, C. Coolen, L. Westenbrink

Three Master's students at the Vrije Universiteit in Amsterdam investigated the concept of quality of care (QoC) by analyzing literature on the topic and interviewing both care professionals and researchers in the USA, Canada, England, Ireland and The Netherlands. They also asked the participants about the relationship between the Tovertafel and QoC.

As a result of their literary analysis, they selected three QoC frameworks that were suitable to describe QoC in long-term care facilities for people living with dementia. One of these is Rantz e.a. (1999), which illustrates the following QoC domains: home, staff, care, communication, environment and family involvement. The model describes QoC from both a provider and consumer perspective and shows that QoC is a multidimensional concept.

The healthcare professionals and experts that were interviewed in this study confirmed the multidimensionality of QoC and indicated that it consists of two parts. The first is clinical (providing basic needs such as dressing and feeding), and the second is social (building relationships and providing person-centered care).

The interviewees were then also asked about the Tovertafel, and they indicated that it directly and/or indirectly contributes to QoC in all six of the domains mentioned above. For example, the Tovertafel helps to provide person-centered care ("care" domain), it allows staff to gain the trust of their residents ("staff"), it helps to create a pleasant environment ("environment"), evokes a sense of feeling at home by providing residents with an activity to do ("home"), increases family involvement ("family"), and increases (nonverbal) communication from residents with staff and family members ("communication").





# Implementation studies

## Improving the sustainable implementation of the Tovertafel

Evert van Grol

In 2020, Evert van Grol (Master's student in Management Policy Analysis and Entrepreneurship in Health and Life Sciences at the Vrije Universiteit in Amsterdam) investigated which factors could hinder or facilitate the frequent, long-term use of the Tovertafel in nursing homes, as frequent use results in the most impact. These were factors that could be related to the product itself, its users, or the care organization responsible for operating the product.

Nine Tovertafel users in various nursing homes were interviewed for the study based on two determinant frameworks (Damschroder et al. 2009; Fleuren et al., 2014). The research showed the importance of having sufficient knowledge about the game system among staff members, having a diverse mix of staff members involved in the implementation of the Tovertafel, as well as good verbal communication in order for the product to have the most impact. Other facilitators for the frequent, long-term use of the Tovertafel were its location within a facility, having a coordinator who is responsible for the Tovertafel, high procedural clarity

and low complexity of the Tovertafel, as well as an open organizational and implementation climate.

Having a limited number of Tovertafel games, on the other hand, was a factor that hinders the frequent and long-term use of the Tovertafel as staff become bored with playing the same games. Lack of knowledge about the Tovertafel and its games is another.

The main insights of the latter study were used to improve the Tovertafel, our games and services.

For instance, in order to facilitate frequent and long term use of the Tovertafel, we introduced an Open Play and Learn-subscription which gives customers access to all games for a specific target group.

We also launched our online portal, My Tover, where customers can access tips, instructional videos, insights and more to help them get the most out of their Tovertafel.

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*“Cognitive decline can result in behavioral difficulties, especially later in the day. We’ve used the Tovertafel effectively to help residents transition from negative behaviors to positive sensory experiences, helping them relax in the process.”*

Pam Tokarczuk, Alzheimer's and Dementia Program Director, Van Dyk Healthcare, US

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