

TEDI-LONDON SUMMER SCHOOL 2020**CASE STUDY: PROBLEM SOLVING****PROJECT
BRAINLINK****DELIVERED BY
THE BRAINLINK
TEAM**

An international, multidisciplinary group from Australia, Columbia and the USA, the BrainLink team combined backgrounds in science, engineering, business and international management.

BRIEF

Design and prototype an innovative solution that harnesses AI and big data technology to enhance the wellbeing of people with dementia and their caregivers, then pitch the idea to an industry panel.

PROJECT OVERVIEW**CONTEXT**

Although over 50 million people are living with dementia worldwide, a surprisingly limited amount of dementia-friendly technology is available to them.

The BrainLink team's research revealed that the inability of people with dementia to remain independent leads to social isolation and feelings of purposelessness, while most assistive technology products in the market change too rapidly to be appropriate for them. Meanwhile, many caregivers struggle with the burden and stress of their work, which can lead to sleeplessness, anxiety and depression.

Most current market offerings provide only single, unconnected features such as games, relaxation apps and reminders. None of them offer an inclusive ecosystem that can help a person with dementia perform essential daily tasks, remain socially connected and stay entertained. And no existing device offers features that are of value to both the person with dementia and their caregiver.

The BrainLink team therefore resolved to overcome two interconnected challenges by designing an assistive technology device that would enhance the effectiveness of the caregiver and empower people with dementia to complete essential tasks and maintain an active social life.

THE BIG IDEA

BrainLink

A smart, portable and competitively priced tablet for people with mild to moderate dementia that allows them to regain their agency, independence and sense of joy. The BrainLink interface hosts a variety of features designed to assist people with dementia in daily life by helping them remember tasks and medication, socialise,



discover new dementia-friendly places and function independently while being monitored by their caregiver.

Simultaneously, the tablet collects and reports data to caregivers about the user's mood, social activity, cognitive state and interests. The caregiver is also able to adjust settings, update schedules and check the user's progress from their own device, limiting the amount of face-to-face care required. This increases the user's sense of independence and facilitates the caregiver role.

APPROACH

The BrainLink team developed a detailed yet flexible project schedule divided into several overlapping phases:

1 INITIAL RESEARCH AND PRODUCT DEVELOPMENT

Identifying critical problems experienced by people with dementia and their caregivers, and developing a product with features that address these issues.

2 CONSULTATION WITH KEY STAKEHOLDERS

Undertaking interviews with industry experts, mentors, people with dementia and caregivers to test the team's thinking and refine the product.

3 FINANCIAL AND BUSINESS MODELLING

Evaluating the marketplace and devising a thorough yet flexible business plan containing detailed projections for launch and growth.

4 PROTOTYPE DEVELOPMENT AND DEMONSTRATION

Developing and testing the user interface, then making design adjustments based on feedback.

5 FINAL PRESENTATION

Creating, rehearsing and delivering the final presentation, and assembling the project report.

Originally envisaging an AI-driven approach, the BrainLink team shifted focus during the project's development towards a big data solution. They also revised their initial plan to develop a working prototype of the BrainLink app to reflect time constraints and feedback arising from consultation with experts and potential users. These insights prompted them to undertake wireframe prototyping of their solution and allocate more time than originally intended to financial and business-oriented tasks.

Believing that the project ultimately achieved their goal of filling the gap in the assistive technology market, the BrainLink team noted that their research had a profound effect on their approach to problem solving. Appreciating that the symptoms and struggles experienced by people with dementia and caregivers vary greatly from person to person led the team to streamline their solution and focus on facilitating more effective and mutually supportive relationships.

Despite these shifts in emphasis and strategy, regular communication between team members was maintained, along with a positive, supportive atmosphere in which ideas from all members were valued and critique was met with open minds. Team members were respectful towards each other and there were no arguments within the group.

Having begun with a prescriptive, feature-focused approach to problem solving, the group ultimately achieved their goal by responding sensitively to new information as it appeared. This commitment to communication, which reflects TEDI-London's collaborative, industry-led approach to learning, enabled the team to respond flexibly and creatively to the challenges they faced along the way.

DID IT WORK?

In their self-evaluation, the BrainLink team identified many positive project outcomes, with several resulting from unexpected challenges arising during the project. They noted that:

- Development of a visual prototype of the solution went smoothly and met the team's expectations.
- Deploying flexible sub-teams composed of members in the same time zone enabled the group to respond to time-management and design challenges that arose during the project.
- Regular, open communication and weekly team meetings enabled the group to function flexibly while maintaining focus.
- The business plan, financial projections and investor strategy generated significant confidence in the commercial viability of BrainLink.
- Certain features were removed from the BrainLink app as a result of research and feedback. These difficult decisions came to be seen by the team as positive responses to the challenges that will inevitably arise during the problem-solving process.

“Creating a product that we believe can really help people with dementia and their caregivers is an incredibly satisfying achievement.”

THE BRAINLINK TEAM

KEY LEARNINGS

Charting the “ups and downs” of their problem-solving journey has enabled the BrainLink team to identify opportunities for future improvement. Valuable takeaways from their TEDI-London Summer School experience included:

- A flat team structure looks good on paper but can lead to a loss of focus and creeping inertia, so select a team leader based on aptitude – not appetite – and rotate the role if necessary.
- Even if you begin with a clear idea of your desired solution, be prepared to revise your strategy in the light of research and consultation with industry experts, mentors and prospective users of your product.
- Communicate regularly and openly with your colleagues – it’s the only way to get things done.
- Time management is critical to success, so plan carefully and don’t be afraid to alter those plans – be flexible but remain organised.
- Enthusiasm will wane over the course of a project, so set interim targets and make time to socialise with your colleagues to prevent burnout.
- Every struggle and every success is a lesson learned for the future.

“We were impressed by how this team navigated the challenges of working across time zones. They showed resilience, and the ability to embrace problems with a solution-focused mindset and a smile. We were inspired by their commitment, passion, humility and engagement with the process.”

DR SARAH CAMPBELL – TEDI-LONDON SUMMER SCHOOL DIRECTOR, 2020

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