



inclusive design education resource

stepping stone: designing an inclusive pedometer



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Research partner:

British Heart Foundation

Year of completion: 2001

introduction

Research and development of a low-cost, user friendly pedometer (a device for measuring walking/ exercise) that supports the British Heart Foundation's campaign to reduce rates of heart disease in the UK by encouraging at-risk groups such as older people to walk regularly. Can a redesigned piece of technology act as a catalyst for behavioural change if it really meets user needs?

next: challenge >>

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challenge

Coronary heart disease is a killer which accounts for one in four male deaths and one in five female deaths every year in Britain - a total of 135,000 deaths a year. It costs the UK healthcare system around £1.6 billion. But just 30 minutes of moderate physical activity such as regular walking on five or more days a week will significantly reduce the risks of a heart attack.

According to the British Heart Foundation (BHF), 70% of adults do not take enough exercise, even though walking is the 'perfect exercise' to prevent coronary heart disease: it is free, available to almost everyone, requires no special equipment and has a low impact on joints. Walking can also be incorporated into daily life such as the commute to work, or can be treated as a social or recreational activity.

Use of a pedometer - a small device worn at the waist that counts the number of steps taken - is widely recognised as supporting regular walking by tracking progress and encouraging the setting of new goals. The display may also read out distance, speed, time and calories burned as well as any other statistics manufacturers and designers deem relevant. However, most pedometers on the market are sports 'gizmos' that are overly complex to use, expensive and have an image that excludes those most at risk from heart disease, such as older people and low income groups.

The challenge is to develop a more socially inclusive pedometer, one that is affordable and easy to use and reflects people's real needs.

next: research partner >>



Regularly walking can be encouraged by use of a pedometer to set personal goals



Most pedometers on the market have a 'gizmo' image and are hard to use



the helen hamlyn
research centre



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research partner

The British Heart Foundation (BHF) is a charity which plays a leading role in the fight against heart and circulatory disease, the UK's biggest killer. It promotes lifestyle choices to aid better health as well as publishing a large selection of literature on the rehabilitation and avoidance of heart related illness. The BHF is also involved in research into causes, preventions, diagnosis and treatment of heart disease. It provides help and support to heart patients and their families through rehabilitation programmes and support groups. It is also involved in the promotion and training of the public and health workers in emergency life support skills and provides life saving equipment to hospitals and health providers.



As a major force in the battle to reduce heart disease in the UK, the BHF is championing a new joint initiative with the Countryside Agency called 'Walking The Way To Health' aimed at getting people at risk from heart disease to take regular walking exercise. A new pedometer was viewed as a key product to aid people in monitoring their walking progress and their health.

next: methodology >>

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methodology

The Research Associate approached the project in three design research stages. He began with an assessment of existing pedometers on the market through desk research and made an initial assessment of these with user groups made up of those at risk from heart disease. Quantitative research then took place with existing walking groups to gather background attitudes towards walking and health as well as determine what features would actually be necessary for a new pedometer. The final stage was iterative prototype development with constant user feedback.

An important part of the design methodology was user testing. The tests were conducted in workshop format lasting about two hours each. Groups of five users, all over 65, were chosen. By designing for their identified needs in terms of a low cost, user-friendly approach, the aim was to make the pedometer a better design for everyone. The first user group was asked to assess five existing pedometers ranging in price and features, commenting on look and feel, display, clip, buttons and functions. This highlighted a series of usability and cost issues that were written into the design brief. Initial concept prototypes were then shown to the second group to fine tune details of the design such as shape, functions, materials and aesthetics.

next: results >>



Concept sketching and iterative user testing formed part of the design process

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results

The user tests highlighted five guidelines that the design of the BHF pedometer should follow - proportion and order, a large display, less features, a friendly aesthetic and low cost.

1) Proportion and order: When setting up the pedometer (inputting stride length etc.) the menu button is used, but it is never needed after that. This button should not have the same order of size as the other function buttons.

2) A large display: Increasing the on-screen digit size will make the display much easier for older people, and everyone, to read.

3) Less features: Manufacturers generally tack on as many features as they can, most of which are not needed. The BHF pedometer keeps the number of functions down to the minimum.

4) Friendly aesthetic: Rather than look like a black box, or cold and 'techie' as most pedometers do, the BHF pedometer has a friendly, customisable and personal look, in line with products such as the Apple iMac or mobile phones.

5) Low cost: After speaking to existing and potential walkers, this was the single most important factor as to whether low income groups or older people would buy one. The target price for the BHF pedometer was set at £5.

next: issues >>



Computer images show the new, improved pedometer and its component parts

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issues

The resulting BHF pedometer moves away from the complex, gadget feel of so many small electronic products. Its differentiating aesthetic aims to be desirable to all. The over-sleeve covers extraneous buttons when not needed and allows for personalisation (as with mobile phone covers) as well as brand customisation. The functions have been simplified to one button in daily use and a large screen enables older people, visually impaired people and walkers in bad light conditions to read the screen and access the functions more readily.

The study showed that designing to include the needs of older users and other ignored consumer groups can result in a better designed product that is more in line with people's lifestyles and aspirations. Many small electronic products have a long way to go to catch up with the mobile phone or computer industries where a growing emphasis is placed on the product as enhancing lifestyle, rather than just being a technology-driven innovation.

Products can be a powerful influence on the way we live our lives and on our health and well being. Can designers of technology products capitalise on this through interaction with the user?

next: projects >>



A prototype tested on the belt of a user



Components prototyped to test engineering viability



The Apple iMac: a technology product that is easy to use and has a friendly aesthetic



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projects

brief 1

- 1/ Look at three different brands of mobile phone.
- 2/ Compare the way you access five different functions for each (e.g. voicemail retrieval, editing a number, text messaging). Document which buttons you press and what the screen displays.
- 3/ Design an optimal interface and process for these five different functions for: a) you b) a 10 year old c) a 75 year old.

brief 2

- 1/ Select any small electronic product (e.g. phone, clock, calculator, pager, alarm, minidisc, toothbrush, radio).
- 2/ Choose three different brands of that particular product and conduct a product audit (compare price, materials, colour, functions, image, shape etc).
- 3/ Select five characters from any soap opera/ film, and redesign that product specifically for them with emphasis on the aesthetics and materials.
- 4/ Now do the same, this time with design emphasis on the function.

brief 3

- 1/ Research via the internet and library some health issues to do with heart disease and its causes. Look at lifestyles and ways of preventing it.
- 2/ Design a small electronic health monitor/regulator/exercise reminder for use: a) in the home b) in the office c) in the gym d) as a mobile phone attachment.

brief 4

- 1/ Select an electronic product that is widely used (e.g. personal computer, mobile phone, minidisc).
- 2/ Write a list of design needs for the following people: a) a mother b) your grandparents c) a supermodel d) a body builder e) a child f) a visually impaired person.
- 3/ Redesign the product interface for each person.
- 4/ Select three features that would make the product better for everyone and incorporate them back into the original product.