

THE VITAL ROLE OF USER INVOLVEMENT IN THE DEVELOPMENT OF AN ASSISTIVE DEVICE

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Stairwalker Projects

Stairwalker I

2004 - 2005 the construction and testing of a prototype with Department of Health funding (HTD). Patents GB2436555B and GB2459791B.



Stairwalker II

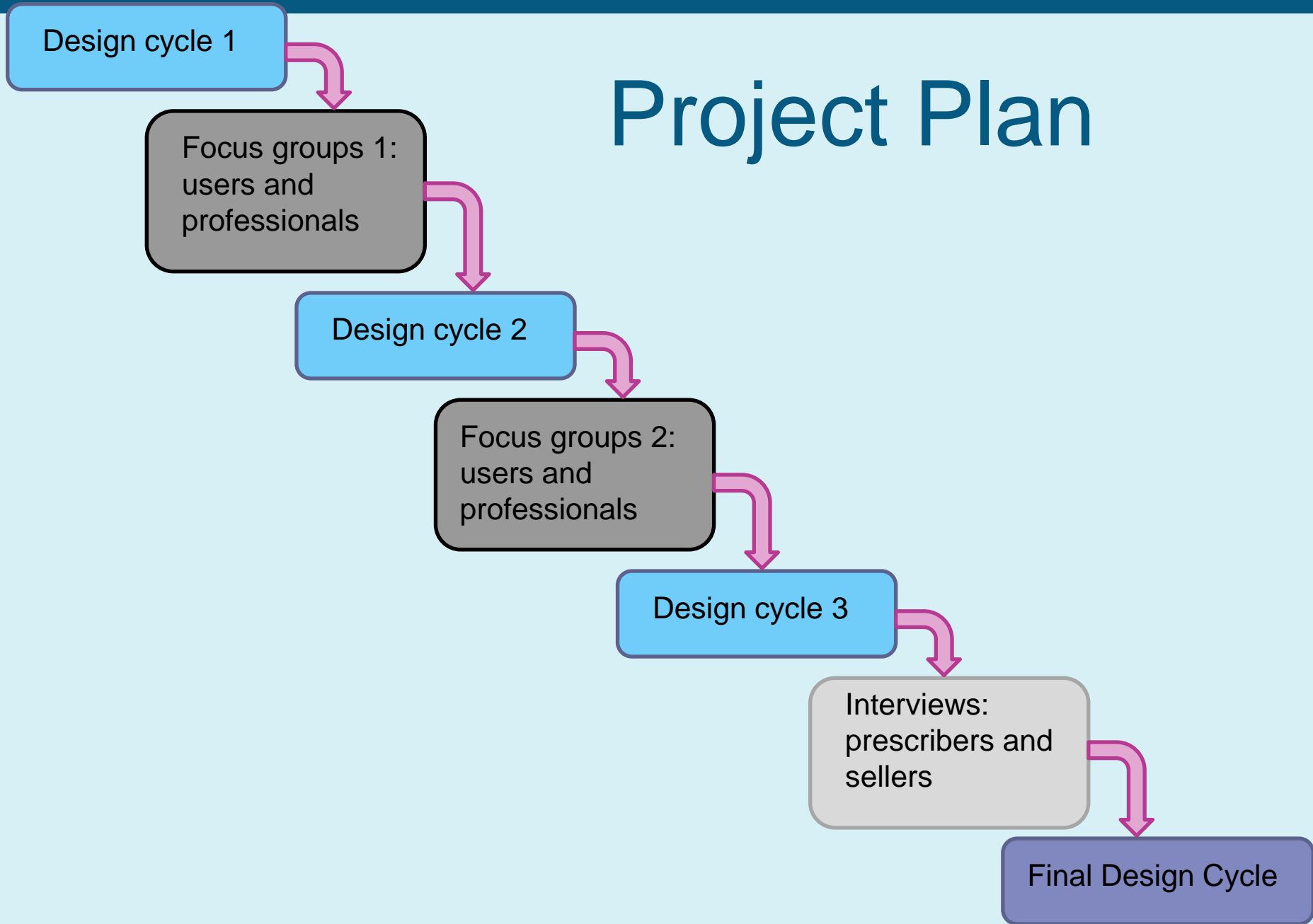
2010 - 2011 a new industrial partner and occupational therapist joined the core team to proceed to the next stage of development. Funding i4i stream 3a (NIHR).



Aim

User involvement in this product development aimed to achieve a high-quality user-centred design, through the use of focus groups and interviews.

Project Plan



Consultation Aims

The aim of the **focus groups** was to examine with potential users, their carers and professional assistive technology prescribers the acceptability of the design for use in home and community settings in terms of ease of use, perceived safety, health benefits and aesthetic acceptability.

The aim of the **interviews** was to examine with potential distributors the perceived economic and commercial viability of the device.

Methods

- Stakeholders were a significant cross-section of older and lay people, people with disabilities, healthcare professionals and local authority therapists
- The focus groups took place across England in rural, urban, deprived and middle income areas
- Groups with potential users and carers were held separately from the groups with professionals
- Semi-structured interviews were conducted with a few potential sellers and distributors.

Participants

	Professionals	Totals
Gender	Male	6
	Female	23
Ethnicity	White	26
	Other	3
Education	Degree or above	28
	Below degree	1

	Potential users and carers	
Gender	Male	5
	Female	11
Ethnicity	White	15
	Other	1
Education	Degree or above	9
	Below degree	7



16 focus groups
5 interviews

Probe Topics for Focus Groups

- Discuss their initial perceptions of the design for use in the home (eg appearance, effect on others...)
- Identify any difficulties with the stair climbing device, (eg function, quality of life, cost, installation, safety, removal, recycling)
- Suggest further possible improvements to the design
- Would participants accept such a device in their own home?
- Discuss any health benefits of this kind of device
- Would participants buy/prescribe this device?
- Suggest any other stake holders who ought to be included in these focus groups

Interview Topics

- Discuss the features you like and dislike about this device
- Based on your experience in the market, identify the reasons why you think this device will and will not sell
- Discuss whether you would buy this device, if you or one of your loved ones were to need it
- Suggest improvements or further research you believe this device still requires
- Suggest what would be the best vehicles to reach all potential users, prescribers and buyers
- Suggest a price

Analysis

- Recordings were transcribed verbatim
- Content analysis was used by main researcher
- The materials were then seen by two other researchers to check for validity of interpretation
- Full agreement between assessors was obtained after discussion
- Reports were written for the design team

Choice Participant Quotes

“Feels better than expected. A feeling of being cocooned when standing inside it. Feels safe and looks reassuring”

“Could be a talking point”

“If it were the key to staying in my own home, I would accept it”

“When can I buy it?”

“Nice slim line design”

“Try before you buy, for example at the DLC”

Potential Users and Carers

PROS

- Maintains stair climbing ability
- User controls the speed of ascent and descent
- The idea of private purchase is liked because of the control one has (as compared to provision by Social Services)
- Good for confidence for people who are nervous about going downstairs
- It has enormous potential
- What about being able to lease it?

CONS

- Requires a level of dexterity and cognitive ability to be used safely
- Not suitable for community settings
- Concerns about the property being repaired when removing the device
- Cannot carry things up and down stairs (cups of tea, walking sticks or handbags)

Professionals

PROS

- Should be relatively easy to install and remove and can be recycled. Therefore more cost effective
- Maintains stair climbing ability
- Potential for paediatric use
- Potential for use in a rehab environment
- If cost below £1000 then can go in as minor adaptation
- Good for confidence for people who are nervous about going downstairs

CONS

- Specialist required to install and remove product
- Unsuitable for narrow stair cases
- Requires a level of cognitive ability to be used safely
- Will not suit bariatric users
- Is not a falls safety device
- Different health conditions may not be suitable for use, e.g. epilepsy
- There will be a need for training both users and carers
- Careful assessment for people with a long term condition that will deteriorate over time

Discussion (1)

- There were some difficulties with recruitment to the focus groups probably because of the short time scales in the project. However we had a good representation of the stakeholders among participants.
- Professionals were especially concerned with health and safety as well as cost issues while users and carers were willing to take more risks and were far more interested in function and independence.
- Some users and carers may have been reluctant to express negative views –especially older ones
- Middle class people over represented in sample.

Discussion (2)

- The design brief was greatly enriched and the potential market was increased following the user consultations.
- The team would not have thought of paediatric use, carrying things on the device or leasing instead of buying
- The user consultations cost 76% of the budget of a technological development project
- The design has been shaped by users throughout all of its history. The interviews confirmed that the device had a future on the market. It is planned the device will be produced to final prototype and tested within 2012.

Acknowledgements

Funding



National Institute for Health Research

Invention for Innovation (i4i) Programme

Future Product Development, Funding

Stream 3

Partners

- Kingkraft



- Harding Industrial Design



- Years Ahead



- Academic Dept of Physiotherapy



Essential References

- Health and Safety Laboratory (2005) Falls on Stairways – Literature Review. Report Number HSL/2005/10.
http://www.hse.gov.uk/RESEARCH/hsl_pdf/2005/hsl0510.pdf. Accessed November 11th, 2011.
- Krueger RA, Casey MA (2000) Focus Groups. A Practical Guide for Applied Research (3rd Edition). Sage Publications, 206 pages.
- Mayagoitia RE, Kitchen S, Harding J, King R, Turner-Smith A (2006) User-centred approach to the design and evaluation of a stair-climbing aid, in Clarkson J, Langdon P, Robinson P (eds) Designing Accessible Technology, Springer, pages 127–134.
- Seale J, McCreadie C, Turner-Smith A and Tinker A (2002) Older people as partners in assistive technology research: the use of focus groups in the design process. *Technology and Disability*, 14, (1), 21-29.
- Valderrama Gama E, Damian J, Perez del Molino J, Lopez M, Perez M & Iglesias F. (2000). Short report. Association of individual activities of daily living with self-rated health in older people. *Age and Ageing* 29, 267-270.