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Bridging Research and Practice: Design Thinking for Implementing the EmpAQ-5 in Hearing Care

→ INTRODUCTION

- Empowerment is essential in hearing care, yet practical tools to support and measure it in clinical settings remain limited.
- The Empowerment in Audiology Questionnaires[1,2,3] EmpAQ-5 and EmpAQ-15 were developed to assess five key domains of hearing empowerment.
- To bridge the gap between research and hearing care this study applied Design Thinking[4], integrated with Implementation Science frameworks (COM-B, CFIR), to co-design feasible and sustainable solutions for embedding EmpAQ-5 in clinical practice.

→ METHODS

- **Design:** A participatory, co-design study combined Design Thinking and Implementation Science
- **Theoretical Frameworks:** Design Thinking (Empathize, Define, Ideate, Prototype, Test); COM-B (Capability, Opportunity, Motivation – Behavior), CFIR (Contextual factors in implementation)
- **Participants:** 61 stakeholders (hearing care professionals (HCPs), managers, researchers)
- **Data Sources:** Workshop transcripts, workshop notes, prototypes, thematic analysis

→ 3 WORKSHOPS

3 workshops followed Design Thinking phases

- **1. Emphasise & Define:** Understanding real-world barriers and identify clinical opportunities for EmpAQ-5. Develop core design principles based on user needs. N=15
- **2. Ideate & Prototype:** Co-creating tools to support EmpAQ-5 implementation. Translate principles into tangible clinical resources. N= 24
- **3. Test & Implement:** Evaluating and refining the tools under realistic clinical scenarios, ensuring fit-for-purpose usability. N=22

DESIGN THINKING PHASES & ACTIVITIES

1. Emphasise & Define Workshop

To identify barriers and facilitators, and establish initial design principles

→ Focus

Participants explored barriers, facilitators, and needs related to empowering clients, HCP and admin staff.

They conducted series of activities that led to how to use EmpAQ-5 and developed Design Principles to guide workshop 2 activities.

→ Creative Activities

3 Empathy Hats:
Mapped out clients', HCP' and admin staff' challenges and needs.
Lotus Blossom Template:
Ideated on "How might we use EmpAQ-5 ?...".
MoSCoW Technique:
Prioritised features by "Must have", "Should have", "Could have," and "Won't have".

2. Ideate & Prototype Workshop

To translate design principles into resources, prototype and priorities

→ Focus

New group of participants built on the insights and outputs generated in workshop 1.

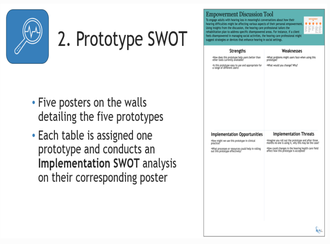
Translated identified needs and design principles into co-designed tools and workflows to support EmpAQ-5 integration.

Encouraged innovation.

→ Creative Activities

Barriers and facilitators to EmpAQ-5: Brainstormed seven clinical use cases guided by the COM-B model (Capability, Opportunity, Motivation).
Dotmocracy: Voted for the most promising
Idea Rally: Wrote, passed, and built on ideas.
Prototyping tools: Created low-fidelity prototypes.

3. Test & Implement Workshop



To simulate tool use, gather feedback, refine, and plan for rollout

→ Focus

In this final workshop a new group of participants evaluated previous prototypes in realistic scenarios and refined them for usability and integration.

Designed new supporting training tools and further revised previous ones.

Planed the EmpAQ-5 training rollout.

→ Creative Activities

SWOT Analysis: Analysed each of previous prototypes.
Empowering HCP: Ideated across knowledge, skills & strategies, participation, control and self-efficacy.
Crazy 8s technique: Individually ideated implementation training tools and processes.
Prototype Training Solutions: Prototyped training solutions.

KEY INSIGHTS & OUTPUTS

Challenges & Needs

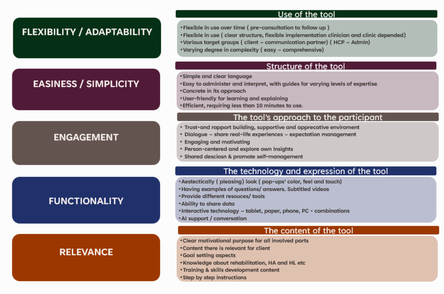
Clients valued emotional support and shared decision-making.

HCPs faced time constraints, role discomfort, and uncertainty in interpreting results.

Admin staff needed workflow clarity and integration strategies.

How to use EmpAQ-5

Design Principles



Barriers & Facilitators

HCPs needed scoring guidance.

Engagement and training were essential.

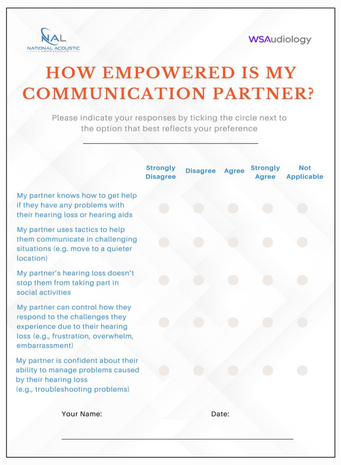
Time limits hindered use; admin support helped.

Visual cues improved usability.

Tools needed to be modular, flexible, and low-burden.

Implementation Prototypes

#1 EmpAQ-5 Conversation Guide
#2 Quick Reference HCP Card
#3 Empowerment Reflection Sheet
#4 Partner Engagement Leaflet
#5 Professional Dashboard
#8 Post-Fitting Cycle
#7 Empowerment AI-Integration



Key Implementation Ideas Summarized

Training	Processes	Incentives	Evaluation	Outreach
Pre-training survey to identify knowledge gaps	Trial clinics to test tools in real scenario	Vouchers and gift cards to encourage participation.	360-degree cameras for peer review	Newsletters and emails with tips
Role play for interactive learning	Clear guidelines and timings for use	CPD points or free conference attendance	Surveys for client and family feedback	Videos/YouTube content to increase understanding
Training videos for visual learning	Use of images to aid implementation	Bonus incentives for compliance	Traffic light system for rating elements	Research and white papers sharing best practices
Online surveys and videos for education			Client videos showcasing benefits	
Staff meetings on implementation				
Reflection guides with peer review and feedback				

New EmpAQ-5 Tool Set

- Conversation Guide
- Quick Reference Card
- Reflection Sheet
- Partner Leaflet
- Admin Checklist

Rollout Plans: Groups developed early-stage plans, including training integration and pilot use cases.

→ CONCLUSIONS

This hybrid Design Thinking and Implementation Science approach successfully translated the Empowerment in Audiology Questionnaires into clinically usable tools. By engaging users across roles, the study fostered realistic, flexible, and actionable solutions for implementing the EmpAQ-5. The work also demonstrates that participatory co-design is not only feasible but also essential for embedding empowerment in hearing care in ways that are client relevant, sustainable, and aligned with hearing care professional identity and workday. Context matters when adapting tools to clinic realities, workflows, and front-desk staff needs.

- Empowerment is actionable when supported by simple, usable, and empathetic tools.
- Design Thinking works in implementation, not just innovation.
- Co-design drives adoption, engagement, builds confidence and ownership.

Link to ORCA Labs Empowerment Focus Area

1. Gotowiec S, et.al. (2022). Understanding patient empowerment along the hearing health journey. International Journal of Audiology, 61 (2) 148-158
2. Gotowiec S, et.al. (2023). Development of a self-report measure of empowerment along the hearing health journey: a content evaluation study. International Journal of Audiology, 63 (4) 275-285
3. Bennett R, et al. (2024). Empowerment Audiology Questionnaire: Rasch Analysis and Traditional Psychometric Evaluation. Ear & Hearing 45(3) 583-599
4. Young T, Pang J, Ferguson M. Hearing From You: Design Thinking in Audiological Research. Am J Audiol. 2022 Sep 21;31(3S):1003-1012. doi: 10.1044/2022_AJA-21-00222. Epub 2022 Mar 28. PMID: 35344385.

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