Interactive multimedia videos to benefit first-time hearing aid users: does what it says on the tin

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Mel Ferguson
Habilitation for Hearing Loss

Evaluate interventions based on scientific principles of:

- brain plasticity
- learning theory
- patient centred care

Ferguson and Henshaw, #H2

Improve patient outcomes and self-efficacy

Thomas et al, #A4

Motivational engagement

Rocks and Ferguson, #A6

Interactive patient education

Auditory and cognitive training

PhD opportunity
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Delivery and retention of information

“You get a lot of information …by the time you get home, you’ve forgotten most of it.”
51% found difficulties using aid at first

Retention of information in first-time HA users after 6 weeks

Overall = 49.6%
Practical = 62.9%    Psychosocial = 34.3%

(AoHL Hear Me Out, 2011)
(El-Molla, Smith, Henshaw, Ferguson, BAA, 2012)
Learning requires more than just giving information

Promotion of learning occurs when:
- Learners construct an internal representation by taking an active role
- Interactivity with learning materials is high

(Rowley, 2007)

(Rowley, 2007)
Re-usable learning objects (RLOs)
(or interactive video tutorials to you and me)

Commonly used in elearning environments

Interactive multimedia clips

- Participatory approach - high quality materials aligned to the user’s needs
- Improve motivation and compliance with health treatments
HEAR IT study

Q: Do video tutorials *supplement* advice and information provided by audiologists and result in enhanced benefit and use for hearing aid users?

1. To *develop* a series of reusable learning objects (RLOs)
   - range of auditory rehabilitation subjects
   - accessible to hearing aid users and their families

2. To *evaluate* the benefits and cost-effectiveness of the RLOs

Randomised controlled trial (CTU)

RLO+  or  RLO-
Development of the RLOs

- RLO content
  - Participatory approach: audiologists and hearing aid users

- 7 RLOs + Introduction
  - Practical and psychosocial
  - High quality production
  - 1 hour
  - Home use

- Based on educational principles
  Each RLO has:
  - Learning outcomes
  - Variety of images
  - Reinforcement and consequences
  - Interactive quiz
Acclimatisation
Learning outcome: be aware of how you adapt to listening with your hearing aids

To view sample clips of HEAR IT RLOs go to the NHBRU website and click on Videos for hearing aid users in the Try our Tests box on the front page

or go to this link
http://www.hearing.nihr.ac.uk/public/interactive-video-tutorials-for-hearing-aid-users-hear-it
Troubleshooting
Reinforcement and consequences
“the earmould may not be inserted correctly”

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http://www.hearing.nihr.ac.uk/public/interactive-video-tutorials-for-hearing-aid-users-hear-it
Select the statement: that is the **correct** action if you experience pain or discomfort from your earmould

**a** Continue to wear the hearing aid despite the pain.

**b** Contact Audiology - there may be a problem with the fitting of the earmould.

**c** Give up wearing the hearing aid.
The correct answer is b

The earmould may feel strange to begin with, however there should be no pain or discomfort.

The audiologist may need to re-shape the earmould or re-instruct you.
How do we measure success?

Access

Compliance

Knowledge

HA outcomes

Quality of life

Valued by users

Health economics

NHS National Institute for Health Research
Recruited n=203
Evaluated n=167

randomised controlled trial
V+ and V-

age, sex and hearing loss
no sig difference

Evaluation session
6 wks post HA fitting
RLO access and compliance

All could access the RLOs – but some barriers

n=675 (49.5% fit criteria)
**No access to DVD, PC or internet = 32%
Poor understanding of English = 9%
Inability to use RLOs due to cognitive decline = 15%

These barriers have implications for implementation into clinical practice.

RLO uptake and compliance

Expressed interest in RLOs and participating in study = 78%
Compliance was high
• 94% watched all the RLOs at least once

There is high interest and compliance with the RLO concept.
RLO re-use suggests self-management

<table>
<thead>
<tr>
<th>RLO title</th>
<th>% watched 2+</th>
<th>Times watched (max)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acclimatisation</td>
<td>56</td>
<td>5</td>
</tr>
<tr>
<td>Getting to know HA</td>
<td>56</td>
<td>5</td>
</tr>
<tr>
<td>Insertion of HA</td>
<td>53</td>
<td>7</td>
</tr>
<tr>
<td>Troubleshooting</td>
<td>52</td>
<td>5</td>
</tr>
<tr>
<td>Expectations</td>
<td>48</td>
<td>5</td>
</tr>
<tr>
<td>Phones and ALDs</td>
<td>45</td>
<td>4</td>
</tr>
<tr>
<td>Communication</td>
<td>39</td>
<td>5</td>
</tr>
</tbody>
</table>

2+ times mean = 49.9% (39-56)
3+ times mean = 20.2% (19-38)
Users voice: post-evaluation focus groups

- 3 groups (n=7-10), mix of V+ and V-
- Main themes
  - Content supported by the vast majority
  - Communication partners were involved
    “Well, I went through them, right the way through. I begged my wife to watch them as well which I thought was important”
  - Provided reassurance, helped remember things
    - Improved awareness and confidence
      “it explained how we have to learn to re-hear things. That is not an aspect that I [was aware of], to re-educate the brain to interpret what you hear”.
  - Sharing of videos with others (family, friends, neighbours)
    “I have passed my DVD on to on old couple who both have hearing aids …” I kept telling her. "Play that DVD and you will know why," because you have got to get used to it, haven't you?”
RLOs are a cost-effective intervention

Health economic analysis
• Incremental Cost-Effective Ratio
  • DVD costs: £1 → £15.87 / QALY
  • NICE ~ £16 000  (cochlear implants ~£14 000)
    → Very cost-effective healthcare intervention

*****Why is this slide so important?*****

• Long term vision is to make the RLOs part of standard hearing aid management in the NHS
  People to convince → the commissioners and service managers

• Real world clinical benefits
  • Local Clinical Commissioning Group (pilot)
  • Break even point = 5% reduction in repairs appointments
Successful intervention?

Access

Compliance

Knowledge

Quality of life

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National Institute for Health Research
When will the videos become available?
Would you be interested in these RLOs for your clinical practice?
Million dollar question

How much would you pay per DVD/internet access?
Further research

• Develop an RLO specifically for CPs***

• Hi-tech, hi-interactivity RLOs for internet, tablets and smartphones

• Low-tech option i.e. interactive booklet

• Address expectations prior to HA fitting

• Training
  • Basic hearing aid use, communication tactics
    • Nursing homes – training for care assistants***
    • Audiology reception staff***
    • Hospitals – training for nurses
    • General practitioners (family doctors)
Thanks to...

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BAA Team of the year 2012
Medipex NHS Innovation award finalists

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NIHR Research for Patient Benefit

Patient panel
Anne Darby
Tina Wales
Rachel Ravenlock
Patricia Barnes
Video stars
(Pat, Chris, David, Tina, Caroline and Clive)
Successful intervention?

- Access
- Compliance
- Quality of life
- Health economics
- Valued by users
- HA outcomes

Looking good!

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Delivery of RLOs

1 hour duration

**50-54 yo**  **70-74 yo**

PC use 85%  36%

Internet use 66%  17%

*Henshaw, Clark, Kang, Ferguson, J Int Med Res, 2012*