Co-Designing a Standalone Music-with-Movement Intervention for People with Cognitive Impairment with Stakeholders

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Music-with-Movement Intervention

- An interactive music intervention that combining music with movement, and utilizes auditory and kinaesthetic elements to enhance the emotion, social, physical and aesthetic capacities of the participants

- More preferred than receptive approaches

Cheung, Lai, Wong, & Leung (2020)

Effects of Conventional Music-with-Movement Intervention

Enhanced memory

Reduced the occurrence of agitation

Improved depressive symptoms

Reduced stress (carer)

Better understanding (carer)

Cheung, Lai, Wong, & Leung (2018, 2020); Cheung, Ho, Chan, Kwok, & Lai (2022)

Scaling up through transformation

Digital Transformation is a process that aims to improve an entity by triggering significant changes to its properties through combinations of information, computing, communication, and connectivity technologies (Vial, 2019, pp.118).

Methods and Results

Co-design

- The creativity of designers and people not trained in design, working together in the design development process.

- A complex digital intervention requires the involvement of diverse stakeholders with co-design facilitating necessary collaborations.

- Ensuring that system is underpinned by expert insights and best practices.

Noorbergen, Adam, Teubner, & Collins, C. E. (2021)

Summary of overall development process

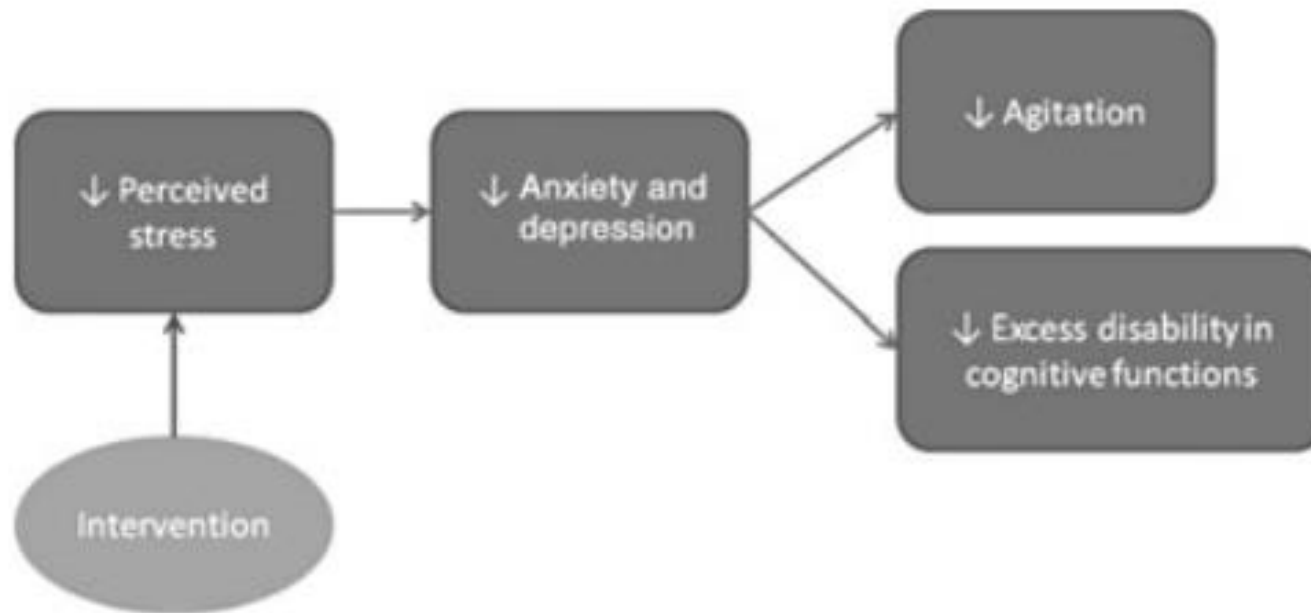Phase 0: Theories underpinning design

Phase 1: Determine users' needs

Phase 2: Produce design solution

Phase 3: Evaluate designs

Phase 4: Design meet solutions

Phase 0 Theories underpinning design

Cheung, Chien, & Lai (2011)

Phase 0
Theories underpinning design

https://goo.gl/4YYTV1

Phase 1: Determine Users' Needs

Focus groups with staff users, volunteers, family carers.

Opinion/Suggestions:

- Digitalize the training materials by including video clips (demonstrating the music activities), ebook material, and songs so that caregivers can be more easily conduct the activities at home
- Some carer indicated it was difficult to motivate the older adult in the activity.

Observed barriers of implementation

- Threats in intervention fidelity
- Subjective assessments
- Unorganized music genres
- Inflexible training hours
- Time consuming in documentation

Phase 2: Produce Design Solutions

Objective Assessments
- Seamless data collection through **motion sensor** equipped in music instruments

Facilitated intervention delivery
- Movement prompting
- **Game Editor Engine**:
    - Editing game elements
    - Remote monitoring

Fun elements
- **AR** interactive musical games
- Big screen projection

Save time
- **RFID** identity card
- Automatic data collection from music instruments
- Automatic **report generation**

Data Analytics
- Cloud-based database for big **data analysis**

Music Library
- Digital music library with filtering and searching functions

Flexible training (Staff/caregiver)
- Online training **webinars**

User friendliness
- **Wireless charging**
- Wireless music instruments matching via **Blue-tooth**
- Automatic data upload via **WiFi**
- Plug-and-play
- Safety test
- Long power life

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Phase 2 Prototype

Phase 3: Evaluate Designs Against Requirements

- Usage data

- Interviews to collect users feedback on usability and acceptability

Phase 4: Continuous Update

Updated functionality

Discussion

Multi-disciplinary collaboration

Co-design approach

Effects of the digitalized intervention are yet to be reported.

Thank you.

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