Regain Stroke Rehabilitation app. Design Plan- Working Draft

Task:

The Regain app. will apply knowledge from data science and human factors in computing to offer an ergonomic solution to stroke rehabilitation, and will enhance medical processes currently in place. Regain will develop seamless and simple design strategies that will assist with connecting users to their data ( in the form of rehabilitation videos interactions between the app. and its potential users). The role of the Regain app. is to provide medical professionals with a better system than what is currently available, to support them in assisting patient’s toward a robust and sustainable recovery.

Process Overview and Design Purpose

Medical professionals assigning rehabilitation videos from our archive ( see companion document *Video Catalogue*), will be able to use the meta-data “tags” for each video to load their preferences into a table (NB: item 4. in the *Video Catalogue* list for each video). Tags are a simple numeric based on the current video numbering systems (01-32). A ‘table’ will populate the tagged data to the app itself. Data inputted to the table in the form of the video exercises, will vary according to the rehabilitation needs of doctor’s in accord with their specific methodology for recovery. It is not our role to establish the parameters for this. Similarly, it is not within the scope of Regain to confirm whether or not the exercises have been performed by the patient. Regain will, however, tell medical professionals the video segment has been played, and how many times.

Operation Overview

The user (patient in combination with carer, or alone) will click through six clearly structured levels, corresponding to the six weeks of rehabilitation. At each level they will find the videos selected by their Doctor are pre-loaded, so that all they have to do is play through the app. Once all are played and the exercises are worked through, they will receive their level badge, and be able to move on.

To encourage the user, we will deploy incentives such as in game rewards and badges collected at each level. There will be a clear visual metaphor that will pinpoint for the user their progress, week by week as they move through the exercises. My initial suggestion is to utilise the metaphor of tree growth (to be illustrated by Mario) in order to will connect with users, many of whom will be older folk. Gardening is a popular past time, and growth metaphors from nature would most likely be of near universal comprehension for patients, all of whom will be temporarily cognitively challenged. Suggested motto: “From small seed to mighty tree.”

Testing using a “Mock Patient”:

The “mock patient” testing stage is important to advance the Regain prototype, and will not require Ethics approval since all the data is conceived by the design team and the levels are tested by us alone. It will allow for the systematic application of *Agile* testing principles, to iterate and modify the design until it is robust enough for user testing on actual patients.

To facilitate the agile protyping of this design, we should create a mock patient, to be used as a testing archetype. Data (in the form of the videos) can then be populated as if it were for this ‘patient’ form their ‘doctor’. The ‘doctor’ will have selected the correct exercises for their rehab and the ‘patient’ will follow through each level until the 6 week programme is complete, and they visually become a ‘mighty tree’. For example, ‘Kate’ woke up one morning having suffered an Ischemic stroke. She is paralysed down her left side and part of her face. Her doctor has allocated 12 videos ( 2 per level) to kick start her rehab. At each level, Kate is required to watch the video at least three times before progressing to the next stage. After watching each video, the app ( now semi-gamified) will offer Kate a visual reward, in the form of her avatar growing from the stages between seed and tree (if that is the metaphor used, for example). Professor Minichiello will be the chief illustrator and oversee the visual design process.

CLINICIANS MEETING:

Julie: Observed we are not trying to replace clinicians, but we are aiming to replace the bits of paper. Patients need prompting perhaps very hour to move. So push notifications could be a possibility.

Bring in carer or buddy to assist. Consider the technical ability of patients is limited so need to be simple. Intercaing remotely would be great, also needs to work across a range of technology.

Kichu: Only 5 percent in nursing homes, but 95 percent are at home with family, carers, an aged care worker offering support. Physio can train the support workers in use of app. App will give authority so carers can prompt, which socially can be important to motivate patients.

Jenni: Need to make sure videos are personalized and follow the program set by clinicians. The program will shift depending when excises are due to be met.

Kichu: Observes it is easier to get finding for COVID initiatives than stroke per se, and we might consider looking at this systems generally to help people exercise ( *Julie suggested that this might apply to the wider community effected by COVID*).

Mario: Assets need to work together and building affordances like exercise motivation (push notifications and extra gamified rewards). Happy to think about funding outside of stroke ecosystem.

Jenni: De-conditioning and Frailty could be a good focus for funding, would allow us to develop for stroke afterward. Promoting activity, strengthening and balance. Would be more buy-in on a broad mobility program.

Julie: Multi-disciplinary Expert group as well as a panel of consumers ( also carers) needs to comment on range of exercises and see if anything is missing out of the 26 options. Get that written up as proof-of-concept. Validating the content. Then we will be reading for finding applications in broader COVID.

Carlos: Readability, contrast scale and look of the applications. Ethics issues about where data is stored on server. How is data being sported so that privacy is maintained. Ethics committee will not approve, however Jenni points out we do not need this approval at this early stage for the app, as we are only asking expert groups to discuss the video content. Down the track we need to work out if Uni security for cloud server is sufficient for medical data. Forecast some annoying discussions with IT.

Julie: Future development of prototype, she suggests incorporating feedback about exercises.