

Report

Concept

Laughtr is a multimodal, information visualisation system designed for the administering and study of laughter therapy on children and young people in a hospital environment.

Long term hospitalisation can have dramatic negative effects on the emotional development of children and young people. As such the practice of offsetting these effects is both a wide and deep area of study for doctors and academics. Our app aims to provide a platform for one such practice; Laughter Therapy. The health benefits of laughing are a timeless nugget of common sense but modern research is uncovering what its effects really are and how they come about. The act of laughing has been shown to decrease stress hormones like cortisol and release positive hormones like endorphins, with the result of reducing levels of stress, anxiety, depression, and increasing tolerance for pain. It's clear to see why harnessing the power of laughter would be a great tool for helping those with serious and debilitating illness. That is why more and more hospitals have been introducing Laughter Therapy. The origins of Laughter Therapy come from the famous journalist and peace advocate Norman Cousins who, when faced with a collagen disease that was crippling him with pain, decided to take matters into his own hands and leave the dreary confines of the hospital. The best pain medicine he could find was not morphine but loud, sustained, and sometimes forced, laughter. He would eventually make a full recovery and while the effects of his home-brand therapy on the disease itself is inconclusive it had assuredly helped his coping with it. Nowadays the therapy takes place within the hospital. Whether it be sessions of group laughter or bringing humour straight to their beds, whether it be young children undergoing surgery or breast cancer patients or elderly alzheimer's victims, whether the laughter be totally natural or totally simulated, laughter has been deployed and studied with great results.

It was for these reasons that we wanted to create a platform for Laughter Therapy that took advantage of mobile devices and their access to the treasure trove of humour found on the internet. Additionally we wanted our platform to be a method of deriving both qualitative and quantitative analysis on the effects of Laughter Therapy live as it happens. The result of this being Laughtr.

Design

Laughtr takes the form of an android app with three main functionalities.

First is a mood evaluation module that uses questions from the Child Health Questionnaire, a globally recognised and academically researched health survey for children, adapted for mobile devices and for multiple levels of maturity and reading comprehension so that the evaluation can be performed with minimal guidance from doctors or parents. Studies show self administered evaluations are no less effective than doctor administered ones and are found to be more comfortable and acceptable to young people. Tests are administered before and after the therapy session to evaluate effectiveness of the treatment and answers are recorded to evaluate changes in mood over longer time frames.

Second is the laughter module. This module records the patients' laugh and provides them with some laugh-motivating material to get them into the mood. The material consists of funny images and videos sourced from an external database. This allows all material to be checked and vetted for age appropriateness as well as categorised to provide patients' with content personalised to their own sense of humour. There may also be merit in analysing how the patients' tastes changes over time in relation to their mood.

Lastly there is the analysis module. This takes the patients' laugh and provides visualisation and analysis. This has benefits for doctors in evaluating their patients mood, academics in studying the effects of laughter therapy, and also for the patient themselves by providing more interesting (but perhaps less medically useful) analytics like the sound wave and the spectrogram. Comparisons are also made to past laughter recordings to again evaluate change over time in relation to mood, but also to encourage the patients to laugh in different ways and with increased passion. Simulated laughter has been shown to provide similar health benefits to natural laughter and often laughing in an absurd or forced manner will bring forth natural laughter as a consequence.

These three modules describe the functional aspects of the app design but what about the non-functional ones?

The general principles we followed throughout the app design were largely a question of age appropriateness. Dealing with a young target audience comes with a unique set of challenges. The younger generations' heightened familiarity with mobile interaction allows them to adapt and learn the use of the app quickly and make explicit teaching less necessary, but conversely they have higher quality standards for user experience. While adults might accept an application that was more clinical in nature a child is unlikely to engage with such an app. As such the visual and interactive quality of the app was high on our list of priorities. Many custom assets like the age buttons were created with the intention of feeling like a

commercial quality app. Likewise we maintained strict standards for response time and provided sound and provided auditory feedback where appropriate.