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DEVELOPMENT AND IMPLEMENTATION OF MEDIA-BASED APPLICATIONS FOR USE IN MUSIC THERAPY

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Abstract
The use of media-based applications in music therapy could be beneficial in terms of efficiency and profitability, e.g., for time management, or therapy workflow. In this work, opportunities for music therapy by applying media technology are investigated. Requirements, chances and risks are discussed with the help of a software implementation for tinnitus therapy.

Introduction
Mechanic instruments are usually used in music therapy. In contrast, media technology is rarely applied. Although influence of mobile and multi-touch-based computers on our everyday life has grown rapidly in the recent years (IDC, 2013).

To learn how we can apply media technology to music therapy work, we have interviewed more than 30 therapists and music therapy researchers. We continued our research because the interview-results showed us potential combining both disciplines.

State of the Art
An overview of previous attempts using media technology in therapy context is given by e.g., Brechtel-Folkers (Brechtel-Folkers, 2000). Modern approaches are shown by Magee (Magee, 2013). "The Motion Composer" (Wechsler, 2012) and the "Robot-assisted Guitar Hero for finger rehabilitation after stroke" (Taheri et al., 2012) also are recent studies for example.

Approach
We chose the following approach for our research work:
- Interview experts for discovering requirements and experiences.
- Do an analysis of needs utilising methods of systems engineering (i.e., from rough to detail, problem solving cycle, thinking in variations) in addition to the mentioned interviews.
- Develop a first system draft.
- Do evaluation using focus-groups and practical tests.

Applying this leads us to the following results.

Results
A tinnitus therapy prototype – considering the "Heidelberg Model of Music Therapy" (Argstatter et al., 2012) – is outlined. General requirements for all music therapy software are:
- modular system design
- high adaptability to each client
- space-saving and therefore mobile construction
- comprehensive but well-arranged

data evaluation

- encapsulation of bio-feedback parameters

We build several concepts. These included for example tetraspastic or anaesthesia as well as the mentioned tinnitus mock-up according to our requirements and evaluation.

An exhaustive demonstration of the results for all concepts is done (Clauß & Seideneck, 2013).

Conclusions

The results of this work show plenty of potential to merge music therapy with media technology. Media technology can support therapy work to improve therapeutic potential but will never replace established music therapy methods. The human with its needs always has to be the main subject in therapy work regardless how much media technology is in use. In addition, the results led to the development of a European network of scientists all interested in these aforementioned developments.

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