

English Abstract

The thesis is about the use of MIDI Technology (which is a form of music technology) in active music therapy with severely disabled children and with children with extensive motoric handicaps and lack of expressive language. The thesis is a theoretical survey, which puts practice in to perspective and includes case vignettes. The thesis is based on 19 years of experience within music technology and a 7 year search after methods to use MIDI technology in music therapy.

The thesis also contains a practical description and a neuropsychological perspective on mirror sensing. Mirror sensing arose from the author's clinical work with his client population. Mirror sensing is an approach to understand the motoric inhibitions and abilities of the individual child. The purpose is to optimize the set up of the equipment individually.

Some non music therapists use MIDI technology in sound and music based therapy on their client population. Their therapeutic attitude is some times quite different from that of music therapists. Therefore this thesis wishes to investigate the significance of the therapeutic relation to the children's 'experience of a core self along with another' and 'experience of an intersubjective self' (as presented in Daniel N. Stern's theory of development).

The formulation of the issue of this thesis is:

1. How can MIDI technology be used in active music therapy on the client population?
2. How can we physically set up MIDI equipment in appropriate manner for the individual child from the client population?
3. Which significance does the therapeutic relation have on the client population's 'experience of a core self together with another' and 'experience of an intersubjective self'?

The thesis contains: 1) A description of the client population based on an epidemiological examination followed by observations of the client population and professional adults' interaction with the children. 2) An examination of the

child's motoric and language development from a neuropsychological perspective. 3) A presentation of Daniel N. Stern's theory of development. 4) An introduction to MIDI theory and a description of different MIDI technologies e.g. IK Air Synth v3, which is a software synthesizer constructed by the author. 5) A description of a music professor's use of MIDI technology followed by a discussion based on Bruscia's definition of music therapy and Stern's theory of developmental. 6) A description of mirror sensing as an approach to and perspective on the theory of the thesis. 7) Clinical examples of the use of MIDI technology in relation to music therapy with the client population is presented in the form of case vignettes.

The conclusion is that there is a versatile range of sensor based MIDI technology which is suitable to active music therapy with the client population, e.g. Sound Beam 2 and I-CubeX system from InfusionSystems together with a PC based solution with sound cards from SonicCore (the latter is obligatory with the use of IK Air Synth v3). The thesis concludes furthermore that a keyboard can be used for the children with the highest level of muscular and motoric development. The suitability increases if the keyboard is set to only play one tone at a time.

Furthermore the thesis concludes that mirror sensing can give information about the individual child's motor function, which can lead to even more optimized set up of the equipment. The parallels between the neuropsychological presentation and Stern's theory of development was discussed as a probable explanation of the way that mirror sensing works.

At last the thesis concludes that a neutral therapist is primarily focused on giving the child an experience of *a core self in the presence of another*. A therapeutic relation with subjectively participating therapist will give the child experiences of *a core self with a self-regulating other*. It is assumed that the latter can strengthen the child's experience of "being-with-another-person" as a competent interactor. It is also concluded that a therapeutic relation is needed for the child to develop and strengthen *'an intersubjective self'* within the therapeutic setting.