Spark Care+: Personalized Music Therapy for Relaxation and Energizing Using a Mobile and AI Approach

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Worldwide 1 in 8 people live with a mental illness (WHO, 2022). Music releases neurotransmitters, including dopamine, but without the side effects of medications (Schriewer, Bulaj, 2016). The purpose of this study is to test the effectiveness of personalized music therapy to relax or energize participants using a machine learning model (ML) connected to a mobile app created by the researcher, using information from the Galvanic Skin Response and Heart Rate sensors. In order to provide a more personalized therapy experience, an option to change pieces was given if biometrics did not align with session goals after 15 seconds. Sixty sessions of 15 minutes each took place with fifty-five participants, five of whom took both sessions at different times, 25 at home and 35 at school. Participants had a statistically significantly higher variance in the energizing session compared to the relaxation. However, the average ohms decrease based on session type decreased for both relaxation and energizing sessions, showing that both music sessions helped the participants relieve stress. The number of interventions for all pieces statistically significantly decreased, indicating the ML model became more accurate for each of the pieces. The average ratings from 1-5 statistically increased from the first to the last piece indicating the effectiveness of the machine learning model for both sessions selecting the pieces that fit the participant's preferences while helping to lower stress and obtain the session's optimal physiological and emotional responses. The data suggests that the personalized music selection for both relaxation and energizing by the Spark Care+ app can lead to participants feeling more relaxed or energized depending on their musical choices.

Awards Won:
Third Award of $1,000