Visualizing Emotions: The Psycho-physiological Analysis of the Client's Anxiety in both Traditional and Digital Counseling Sessions

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Computer-aided education was normally measured by standardized scales, questionnaire, behavior observations, and/or interviews for both quantitative and qualitative analysis. As such results were mostly meta-cognitive, this research attempts to take the psycho-physiological point of view to retrieve first hand responses of mind and emotions. This research presents the analysis of the client's counseling anxiety by visualizing their emotional states.

In order to perform the experiment, a digital tool "Landscape Montage" was developed to correspond to its counterpart in the traditional form. "Landscape Montage Technique" is an expressive art therapy counseling method proposed by Mr. Nakai in 1969, which is to guide clients to perceive their own "self" and reveal their senses of the reality. The client was guided to draw 12 landscape objects. The presentation of which objects can reveal the current mind status of the client. It is a 3D digital tool that allows users to explore themselves in the interactive and self-experiencing design.

Both traditional and digital forms of Landscape Montage were conducted to analyze the client's emotional responses. Q-sensor was used to record and visualize the client's emotional activities during the counseling sessions. Q-sensor is a wrist wear, wireless biosensor that measures emotional arousal via skin conductance. The electrodermal activity shows users' emotional state that grows higher during states such as excitement, attention or anxiety and lower during states such as boredom or relaxation. The sensor also measures temperature and wrist activities in terms moving directions and distances. The counseling process video taping and after-session interviews were also conducted to cross analyze the psycho-physiological data.

The findings show that the computer interface designed to use in the digital counseling session can successfully reduce the client's anxiety. The client was more willing to reveal his true thoughts and feelings, and showed more motivations to participate future counseling sessions.

Keywords: Digital Counseling, Anxiety, Visualizing Emotions, Psycho-physiological Responses, Electrodermal Activities