主 論 文 要 旨

論文題名

Perception of Emotions and Evaluation of Interactions Regarding Body Movements in Dance

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主論文要旨

　　This study investigated emotional and movement characteristics in the interaction between dancers and audience, and the interaction between multiple dancers. Both qualitative and quantitative analyses were performed by using psychological indices and a motion capture technique, respectively.

　　First problem is that when the audience perceives emotions expressed by dances, what impressions and movement characteristics were used as clues? Factor analyses and covariance structure analysis revealed that three impression factors and four movement factors were used as clues. Based on the results, a movement–impression–emotion model was constructed.

　　Then, we investigated whether the audience can receive emotions of movements from a moving picture of point-light marks indicating the locations of major body joints. The results indicated that the audience could correctly recognize emotions and obtain impressions that were peculiar to each emotion. Positive emotional expressions in body motion, which are usually difficult to distinguish, were also investigated. The results indicated that the motion acceleration of dancer's body trunk were effective in expressing positive emotions with slight differences.

　　Next, dancers' emotional states and movements during their interactions with the audience were investigated. The results suggested that positive and negative emotions of dancers increased when there was an audience. Namely, the speed, acceleration, and degree of development of the body have increased. Moreover, the dancers tended to perform movements with more complicated rhythms and used whole body movements.

　　Finally, we focused on the interaction between the dancers. The comparison results of movement timing between face-to-face and face-to-back conditions suggested that face-to-face condition caused higher synchronization of timing. In addition, the dancers actively used their waists and knees to move their limbs and trunks for complicated dance movements.

　　The results might be wildly recognized as empirical knowledge in the field of dance. However, this study revealed the quantitative and objective evidences for the first time by using a motion capture technique. These results contribute to the development of learning and support system for dance education, and provide basic knowledge for developing advanced human-machine interaction technology based on body movements.