

Examining In-Line Skating Experiences In Psychological And Physiological Signals

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In-line skating is considered by everyone in Taiwan as a familiar sport. That is, residents in Taiwan either have seen or have heard of in-line skating. People have been promoting in-line skating for years in Taiwan. Taiwan's In-line skating athletes as national representatives have frequently won prizes and medals in competitions worldwide. This study extended Pine and Gilmore's (1998) 4E model, four types of experiences: Entertainment, educational, escapist, and esthetic, to add two more types of experiences: Achievement and sociability, and applied the 6E model to examine in-line skating participation and spectatorship experiences.

Questionnaires were used, which include scales measuring experiences in and specialization in the sport of in-line skating. Physiological signals such as EEG (electroencephalogram), heart rate variability, and data of areas of interest from an eye tracker were also collected when participants watched a three-minute film showing figure and speed skating by two excellent athletes. This study attempts to compare subjective information from questionnaires and objective information from physiological signals. College students were recruited to participate in this study. Among 75 participants, 32 were from in-line skating sport clubs as the experimental group.

Analysis of subjective data showed that vicarious experiences in watching the in-line skating film were higher than recalled personal participation experiences for the experimental group in five types of experiences: Educational, escapist, esthetic, achievement, and sociability. This might be because the two excellent athletes performed very well in the film. Providing more opportunities for students to watch in-line skating may contribute to promote skating activities. Further, the experimental group was divided into two sub-groups: The high specialization sub-group with 14 people and the low specialization sub-group with 18 people. The comparison between these two sub-groups in participation experiences revealed that the high specialization sub-group had higher experiences than the low specialization sub-group in all six types of experiences. However, when all participants were divided into the high specialization group with 21 people and the low specialization group with 54 people, the comparison between these two groups in spectatorship experiences showed that only sociability experience was higher in the high specialization group than in the low specialization group.

As for the comparison of heart rate variability between the experimental group and the contrast group, only the average time of R-R interval was significantly different. The experimental group had higher R-R interval than the contrast group, indicating that the experimental group might be more familiar with in-line skating and feel less excited than the contrast group. Additionally, when comparing EEG, the experimental group had lower Delta and Beta value of power in both frontal point 1 and 2 than the contrast group, indicating again that the experimental group might be less aroused and more relaxed than the contrast group.

Concerning with the relationships between subjective and objective information, the analysis of correlation coefficients showed that the R-R interval was negatively correlated with the vicarious achievement ($r = -0.28$) and sociability experiences ($r = -0.26$), indicating that higher experiences would have quicker heart rate. The relationship between the Theta value of power in frontal point 2 and educational experience was significant ($r = 0.26$, $p = .033$), indicating that the higher educational experience would have stronger brain wave aroused. As for the areas of interest, when respondents had more frequently looked at the upper body the athletes, they had stronger entertainment (0.28), educational (0.33), and escapist (0.28) experiences.

This study concluded that the relationships between psychological and physiological signals were between weak and moderate. However, physiological signals did provide additional information to examine the experiences. Further research is required to clarify the difference influences by different types of waves in different brain areas. In short, in this study, the questionnaire and physiological signals (brain wave, heart rate variability and eye tracker) data were analyzed to provide information for future interdisciplinary research among areas of leisure studies, sport experiences and bio-medical engineering, and to give certain guidelines for promoting in-line skating and relevant sporting events.

References

Pine II, B. J., & Gilmore, J. H. (1998). Welcome to the experience economy. *Harvard Business Review*, (July–August), 97–105.