

The Comparison Study on Measurements of Flow Characteristics for Intellectual Computer Game

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【Abstract】 With the development of personal computer (PC) games and Internet digital content, players can gain enjoyment and experience a flow status through the interactive process. Previous studies measured flow experiences through experience scale after activity. Such studies could easily lead to deviation due to the participants' subjectivity and recall incorrectness, and fail to measure the dynamic flow status during the activity. To illustrate the above-mentioned statement, this study applied physiological and behavioral indicators to measure the flow characteristics on a PC intellectual game. Participants' flow concentration, enjoyment, and control characteristics were measured during game playing by physiological indicators (brain wave, galvanic skin response, and heart rate) and behavioral indicators (facial expression, voice, eye blinking, and mouse clicking). Also, they were asked to fill out the flow experience scale after the activity. The different indicators were compared to find out which one has the better consistence of flow characteristics. The results indicated that physiological and behavior measurement indicators have better consistence; it was easy to link with game situation to discuss the dynamic flow status of participants. Future studies can further validate on the results on mass sample or different game categories. These findings are helpful to measuring flow characteristics, and also for instantaneously measuring flow status of players with physiological and behavioral measurement indicators, which could help game designers designing better PC games.

【Keywords】 Flow characteristics, psychology, physiology indicators, behavioral indicators