A Factor Analysis on Perceptual Differences of E-Sports Among Male and Female University Students

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Electronic Sports (e-Sports) are becoming increasingly popular and having a significant impact among young generation in the world (Laxmisha & Gao, 2009). While marketing professionals from the eastern countries have been successful in developing sport gaming business, the industry in the North America is still young and faces challenge of popularity of the games (Soumokil, 2009). Previous studies on e-Sports have primarily been focused on the perspectives of technology (Laxmisha & Gao, 2009), marketing (Borowy & Jin, 2013) and social impact (Soumokil, 2009). Very little attention has been paid to the questions whether participants perceive e-Sport as a sport, what discrepant opinions toward e-Sports would be between male and female users and how to assess perceptual differences of e-Sports participants. Therefore, a factor analysis on perceptual differences of e-Sports among the participants becomes essential. The purpose of this study was two-fold: (a) to develop an instrument to measure perceptual differences of people for e-Sports; and (b) to explore different perceptions toward e-Sports between male and female university students.

To explore the research questions, a survey instrument entitled the Inventory of Perception for E-Sports (IPES) was first developed through the stages of literature review, factor and item generation, content validation and factor reliability. The instrument included a total of 23 items which was categorized into the factors of Attraction, Economics, Recognition, Socialization, and Technique. All items were measured using 7-point Likert scale ranging from (1) strongly disagrees to (7) strongly agree and a paper-and-pencil based survey was applied to this study. The survey packages contained a demographic information sheet and the IPES. The packages were distributed to university students ranging from 18 to 35 years old on college campuses in the east coast of America. The completed surveys (N = 377; male = 176, female = 201) were then selected and analyzed in Exploratory Factor Analysis (EFA) with SPSS 19.0.

Alpha .05 and factor loading (FL) .50 were set forth in EFA for eliminating the items with FL lower than .50. The remaining 19 items were tested in Confirmatory Factor Analysis (CFA) using AMOS 17.0. The revealed fit indices ($\chi^2/df = 3.92$, RMSEA = .08, SRMR = .05, AGFI = .81, CFI = .89) (Hair et al., 2010) indicated that the model of IPES fit the data with acceptable content and construct validities. The internal consistency reliabilities for the five factors ranging from .66 to .89 with average .72 were satisfactory. Multivariate Analysis of Variance was further utilized to examine if there would be a significant difference on the five factors between male and female participants and the result was significant ($\Lambda = .881$, p < .01). Follow-up Analyses of Variance were performed to test detailed difference on each factor. The results indicated that there were significant differences between male and female groups on the factors of Attraction ($F = 33.68$, p < .01), Economics ($F = 22.44$, p < .01), Recognition ($F = 28.46$, p < .01), Socialization ($F = 26.27$, p < .01) and Technique ($F = 34.09$, p < .01). The male participants scored significantly higher than the female participants across all five factors indicating that the men perceived e-Sports higher than the women for the attractive nature of video games, e-Sports belonging to sport category, economic and social impacts of the competition, and importance of technology competences.

The study identified important perceptual factors based on the theoretical foundation and scientific procedure and provided a reliable instrument to measure various perceptions of individuals toward e-Sports. Marketers of the industry may utilize the IPES to obtain meaningful information regarding perceptions of the games from different consumer segments, and to better promote e-Sports in the competitive sport market.