

# Taiwan Sport and Exercise Psychology Research Review: Social Network Analysis of Theme Topics and Age Trends

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Sport and Exercise Psychology research has gradually gained attention in the public eyes in Taiwan and has become an indispensable professional field to promote athlete achievement or mass sports quality. This study aims to review 121 data on sports psychology-related topics which were contained 115 academic papers in the Taiwan Social Science Citation Index (TSSCI), and 6 doctoral dissertations, exploring the relationship between the focus of past research topics and discussing trends and changes in research themes across generations through rigorous social network analysis methods. The study found that: (1) "Sportsmanship/Moral Development" and "Modeling/Observational Learning" are the research topics that are less discussed in Taiwan. The other nine research themes can be divided into three categories: a) "Competition/Achievement Orientation" and "Multidisciplinary Approaches to Psychological Issues"; "Self-Perceptions", "Emotion/Arousal/Anxiety", "Physical Activity Adoption, Maintenance, and Adherence"; b) "Gender Role", "Attitude/Motivation", "Social Development/Significant Others", "Measurement Development and Validation". Among which "self-cognition" is the key role of the most developmental potential context, and the frequency of integration with other research topics is also the highest. (2) In the decade after 2006, the development of Taiwan's sports psychology is the most diverse, and after 2016, it becomes an in-depth study of several research topics. In the time interval 1(1993-2000), the most critical research topic is "Attitude/Motivation". In time interval 2(2001-2005), the most critical research topic are "Self-Perceptions", "Attitude/Motivation". In time interval 3(2006-2010), the most critical research topics are "Self-Perceptions", "Multidisciplinary Approaches to Psychological Issues", "Emotion/Arousal/Anxiety", "Social Development/Significant Others", "Gender Role", "Attitude/Motivation". In time interval 4(2011-2015), the most critical research topics are "Self-perceptions", "Attitude/Motivation", "Multidisciplinary Approaches to Psychological Issues", "Emotion/Arousal/Anxiety", "Social Development/Significant Others". At last, "Self-Perceptions" is the most critical research topic in time interval 5(2016-2018).

**Keywords:** *age trend, social net work analysis, sport and exercise psychology*

## Extended Abstract

The purpose of this research is to organize the focal points and generational trends of research interests in sports psychology in Taiwan and to examine the relationship between different research topics through a social network analysis. The development of sports psychology has focused mainly on the physical and mental health of athletes, ranging from the elite to the general public, and responded to the current major social

issues evident in Taiwan. For example, an increasing amount of research in sports psychology responds to the aging phenomenon in the society, thereby helping the elderly remain healthy toward the end of life. Therefore, sports psychology is considered to be of great importance to Taiwan's national development and social health.

As the development of sports psychology has matured, reviews of sports psychology research topics

have gained increasing importance. At present, most of the methods used to organize sports psychology research perform a descriptive analysis of the research topics to obtain a general outline of the current state of research. However, this method makes it difficult to identify the relationships between the different research topics. Therefore, this study uses rigorous social network analysis to explore the generational context and identify the themes and trends of the development of sports psychology in Taiwan as a reference for the future development of sports psychology research topics.

The entire study of sports psychology should be regarded as a unity that includes the relationships between different research focuses. If such assumptions hold, social network analysis is a unique and effective way of thinking. Different individuals are nested within a specific relationship network. Based on the social reality of a specific interaction or relationship attribute, relationships of different individuals in the network are constructed. Therefore, this research uses social network analysis to explore the different research themes of sports psychology and determine how they interact in the social reality of Taiwan's overall research development, and responds to the original objectives and goals of this research.

To examine existing research into Taiwan's sports psychology, this study targets research through using the Airiti Library to search the journals approved by the Taiwan Social Science Citation Index and included in the Research Institute for the Humanities and Social Sciences, Ministry of Science and Technology, and doctoral dissertations that focus on sports psychology in Taiwan. After excluding essay articles and journal administrative articles, 101 journal articles, six doctoral dissertations, and 107 analysis data were retained for analysis.

Weiss and Gill (2015) analyzed a range of sports psychology topics obtained from articles published in *Research Quarterly for Exercise and Sport* from 1930 to 2005, which included sportsmanship and moral development; social development and significant others; self-perception; attitude and motivation; modeling and observational learning; emotion, arousal and anxiety; competition and achievement orientations; gender roles; measurement development and validation; physical

activity adoption, maintenance, and adherence; and multidisciplinary approaches to psychological issues. This research is based on 11 types of sports psychology research themes to conduct a structural analysis. In addition, a code collaborator and a code checker were used to increase the coding reliability. Finally, the researchers focused on the visualization, density, and P1 value of the social network analysis as the emphasis of the research analysis and conducted subsequent results and discussions.

From the perspective of the overall social network analysis graph theory, the 11 sports psychology research topics have been shown to be interrelated in Taiwan. However, after a standardized process of setting a relationship strength of 5, sportsmanship, moral development and modeling, observational learning are except for network relationships. The remaining nine categories of the research topics are visually divided into two groups: (1) competition and achievement orientations; multidisciplinary approaches to psychological issues; emotion, arousal, and anxiety; self-perception; and physical activity adoption, maintenance, and adherence; and (2) gender roles; attitude and motivation; social development and significant others; and measurement development and validation. The first group, which examines how to combine the methods and technologies of other professional fields to help athletes get the best results and performance, focuses on self-perception, emotion, and other aspects of the execution of sports behavior as well as the impact of maintaining sports behavior. The second group focuses on the impact of gender roles, motivation, and significant others on sports psychology while developing relevant potential variables and measurements to assess them.

The density data obtained in this study showed that the 11 focuses of sports psychology research in Taiwan are not independent. The research results show that the density of the social network relationship diagram is 0.436, and the  $p$ -value of the density test for 0 and 1 is  $.048 < .05$ , which represents that the density is 0 or 1 and that the density of the social network relationship diagram is significant. The P1 value data for each research topic show that self-perception has the highest degree of

connection with other research topics, and gender roles are less commonly related to the other research topics. The results of P1 expected values show that, except for sportsmanship, moral development and modeling, and observational learning, which are rarely connected with self-perception, most of the research focuses are connected with self-perception. Therefore, self-perception plays an important role in Taiwan's sports psychology research topics.

Based on the collation results of Taiwanese literature (from 1993 to date), the researchers set 1993-2000 as chronological interval one, and 2001-2005, 2006-2010, 2011-2015, 2016-2018 as chronological intervals two, three, four, and five, respectively. Interactions within interval three are more active than in other intervals. In the first interval, the research theme of attitudes and motivation are the main topics; in the second interval, self-perception research topics have an important core position; in the third interval, self-perception, physical activity adoption, maintenance, and adherence, emotion, arousal, anxiety, social development, significant others, gender roles, and attitudes and motivation and other research topics are accentuated. Interval four includes topics such as self-perception, attitudes, motivation, physical activity adoption, maintenance, and adherence, emotion, arousal, and anxiety. The research theme of self-perception is at the core of interval five.

The results of this study show that the overall development of sports psychology examines the following nine topics: social development and significant others; self-perception; attitude and motivation; emotion, arousal, and anxiety; competition and achievement orientations; gender roles; measurement development and validation; physical activity adoption; and multidisciplinary approaches to psychological issues. These nine research topics are important and are connected with each other. However, the overall results of the analysis show that the development of sports psychology in Taiwan has so far centered on self-perception.

The analysis of social networks in the inter-generational period shows that different emphasis is placed on different research topics at different times. For example, the development of sports psychology in Taiwan started later than it did in the United States, and each generation has its own themes of concern and value in relation to sports psychology. In addition, the density data showed that while early research focused on a small number of topics and gradually incorporated multiple research topics, more recently, in-depth discussions have focused on specific topics (with less interaction between multiple research topics). The current research in sports psychology in Taiwan is focusing on understanding a few particular chosen topics.