



Relationships among Perceived Physical Literacy, Sportspersonship, and Sports Orientation: Verification of the Moderating Effect by Gender

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Abstract

Athletes' performance in sports is influenced by both personal and environmental factors, among which sport orientation plays a particularly critical role. This study examines whether gender differences exist in the perceived relationships among physical literacy, sportspersonship, and sport orientation in Taekwondo athletes. A total of 259 collegiate athletes registered with the Korea Taekwondo Association in 2024 participated in the study. Research hypotheses were tested using SPSS 23.0 and the PROCESS Macro program. The results revealed that physical literacy positively influenced both sport orientation and sportspersonship, and sportspersonship also had a positive effect on sport orientation. Notably, physical literacy enhanced sport orientation only among male athletes. These findings suggest that male athletes with higher levels of physical literacy tend to perceive sport orientation more strongly than their female counterparts. The study highlights the importance of strengthening educational programs that promote physical literacy in sports settings.

Key words: perceived physical literacy, sportspersonship, sports orientation, gender

Introduction

In the sports field, athletes' behaviors, attitudes, motivation, and etiquette are considered highly important (Oh, 2023). Accordingly, the field of sport psychology has devoted considerable effort to explaining athletes' sport orientation. Sport orientation refers to a psychological trait that reflects an individual's motivation and attitude toward participation in sports. Specifically, it encompasses how individuals engage in competitive activities, set goals, take action to

achieve those goals, and exert effort to win (Gill & Deeter, 1988). Recently, scholars in the field of physical education have made efforts to examine the relationship between physical literacy and constructs such as sportspersonship (Toy, 2023) and well-being (Melby et al., 2023). However, there has been a lack of research investigating the relationship between physical literacy and sport orientation, a concept that holds significant importance in the context of sports. Therefore, the present study aims to explore the relationships among perceived physical literacy, sportspersonship, and sport orientation among collegiate Taekwondo athletes in South Korea. Additionally, it seeks to examine differences in sport orientation levels based on perceived physical literacy and gender.

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Modern sports environments emphasize the holistic development of athletes beyond simple physical performance (Cairney et al., 2019). In this context, physical literacy has emerged as a crucial construct, defined as the motivation, knowledge, confidence, and physical competence required for individuals to maintain lifelong engagement in physical activity (Whitehead, 2010). Rather than being limited to basic motor skills, physical literacy contributes to an athlete's integrated development across social (e.g., cooperation, sharing), cognitive (e.g., behavior shaped by environmental factors), and emotional (e.g., trust, motivation) domains (Gilic et al., 2022; Samawi et al., 2025; Van Wyk et al., 2025). This psychological foundation is expected to play a vital role in shaping how athletes perceive competition and interact with others in rigorous training settings.

Sportspersonship refers to athletes' moral development, character formation, and behavior within the context of physical activity and sport (Bolter & Kipp, 2018). It includes adherence to social norms such as self-control, as well as prosocial behaviors intended to support others (e.g., helping an injured opponent, cheering for a teammate). According to Wandzilak (1985), sport-related behavior is defined as actions involving positive interactions with teammates, officials, coaches, and opponents. In athletic settings, sportspersonship has been shown to improve through training programs grounded in psychological principles and self-efficacy enhancement (Cruz et al., 2017; Heydari Alekasir et al., 2018). Moreover, sportspersonship has been reported to significantly influence both prosocial and antisocial behaviors (Bolter et al., 2018), underscoring its meaningful role as an independent or mediating variable in sport psychology research.

Although previous studies have examined sport orientation in relation to gender (Gill, 1988; Rumahpasal et al., 2020), there remains a lack of research exploring how gender interacts with physical literacy to influence sport orientation. This gap highlights the need for the present study. Sport orientation has been widely investigated through various lenses, including sport education (Ginanjari et al., 2023), self-determined motivation, sportspersonship (Rumahpasal et al., 2020),

and exercise identity (Kokaridas et al., 2009). Building on these findings, examining the sport orientation levels of collegiate Taekwondo athletes in South Korea may offer valuable insights into how athletes acquire the behavioral competencies necessary for respectful interaction with teammates and opponents, goal-setting, and the pursuit of victory—core elements of appropriate participation in Taekwondo.

In summary, while gender has been studied individually, its role as a moderator between physical literacy and sport orientation has been largely overlooked (Rumahpasal et al., 2020; Gill, 1988). The inclusion of gender as a moderating variable is grounded in the distinct socialization processes and psychological perspectives observed in male and female athletes. Research has consistently shown that male athletes often score higher in competitiveness and win-orientation, whereas female athletes tend to prioritize goal-setting and personal mastery (Gill, 1988). Furthermore, the impact of perceived physical competence—a core element of physical literacy on achievement motivation—may manifest differently by gender due to differing perceptions of athletic identity and social support (Laird et al., 2018). In the context of Taekwondo, where traditional gender roles often intersect with martial arts values, the pathway from physical literacy to sport orientation may be strengthened or weakened depending on the athlete's gender. Notably, this study contributes to the development of a new conceptual model by investigating sport orientation through the interaction of physical literacy and gender, thereby expanding the theoretical scope and offering practical insights for the Taekwondo setting.

- H1: Perceived physical literacy will have a significant positive effect on sport orientation.
- H2: Perceived physical literacy will have a significant positive effect on sportspersonship.
- H3: Sportspersonship will have a significant positive effect on sport orientation.
- H4: The interaction between perceived physical literacy and gender will significantly influence sport orientation.

Methods

Participants

In this study, university Taekwondo athletes registered with the Korea Taekwondo Association in 2024 were selected as participants. The sample consisted of 259 athletes, including 162 males (62.5%) and 97 females (37.5%). The participants comprised 76 freshmen (29.3%), 62 sophomores (23.9%), 76 juniors (29.3%), and 45 seniors (17.4%), total 259 individuals (100%).

Measurement

The questionnaire used in this study comprised scales that have previously demonstrated adequate reliability and validity. It included nine items assessing physical literacy, based on the scale developed by Yilmaz and Kabak (2021). An exploratory factor analysis was conducted ($KMO = .931$; Bartlett's test of sphericity: $\chi^2 = 1594.689$, $df = 36$, $p < .001$). The results confirmed a single-factor structure, which accounted for 65.19% of the total variance. To measure sportspersonship, the Multidimensional Sportspersonship Orientations Scale by Vallerand and Brière (1997), consisting of 20 items, was employed ($KMO = .910$; Bartlett's test of sphericity: $\chi^2 = 1796.634$, $df = 45$, $p < .001$). These items were successfully integrated into a single factor, explaining 70.19% of the total variance. In addition, the Sport Orientation Scale developed by Gill and Deeter (1988), which contains 25 items, was administered using a 5-point Likert scale ($KMO = .947$; Bartlett's test of sphericity: $\chi^2 = 5269.454$, $df = 190$, $p < .001$). The factor analysis indicated that this scale was represented as a single factor, accounting for 63.68% of the total variance.

Table 1 presents the descriptive statistics for the study variables, including the mean, standard deviation, skewness, and kurtosis, along with composite reliability and average variance extracted (AVE). The data followed a normal distribution, as confirmed by skewness and kurtosis values, which fell within the recommended ranges of -2 to +2 and -7 to +7, respectively (Hair et al., 2013).

Table 1. Correlation coefficient between measurement variables

Variable	1	2	3
1. Physical Literacy	-	-	-
2. Sportspersonship	0.65**	-	-
3. Sport Orientation	0.69**	0.75**	-
Mean	3.89	4.23	4.11
Standard deviation	0.71	0.64	0.67
Skewness	-0.05	-0.64	-0.37
Kurtosis	-0.79	-0.59	-0.91
Cronbach's α	.93	.93	.97

* Significant differences for $p \leq .05$

Statistical Analysis

The data collected in this study were analyzed using statistical software, including SPSS 23.0 (SPSS Inc., Chicago, IL, USA) and the SPSS PROCESS Macro. The analysis was conducted in the following steps. First, a frequency analysis was performed. Second, Cronbach's alpha coefficients were calculated to assess the reliability of each measurement instrument. Third, Pearson's product-moment correlations were computed for the major variables. Fourth, the interaction effect of physical literacy and gender on sports orientation was examined using the SPSS PROCESS Macro (Hayes, 2018). Statistical significance was evaluated using a 95% confidence interval (CI) and an alpha level of .05.

Results

Result of Statistical and Correlation Analyses

Correlation analysis was conducted to explore the relationships between variables, and all correlations were below 0.75, suggesting no concerns with multicollinearity (Bollen & Lennox, 1991).

Path Analysis of Physical Literacy, Sportspersonship, and Sport Orientation

The results of verifying the path analysis of physical literacy, sportspersonship, and sport orientation shown

Table 2. Direct and Interaction effect index

Variable	B	S.E	Boot S.E	t(p)	95% CI	
					LLCI	ULCI
Sportspersonship: R ² =0.563, F (1, 257) = 331.503, p<.001						
Constant	1.565	0.149		10.526***	1.272	1.858
Physical Literacy	0.684	0.038		18.207***	0.610	0.758
Sport Orientation: R ² = 0.749, F (4, 254) = 190.236, p<.001						
Constant	-0.436	0.393		-1.1082	-1.2098	0.339
Physical Literacy	0.318	0.099		3.209**	0.123	0.513
Sportspersonship	0.835	0.051		16.524***	0.736	0.935
Gender	0.565	0.250		2.259*	0.072	1.057
Physical Literacy × Gender	-0.190	0.065		-2.922**	-0.319	-0.0620
Conditional effects of the focal predictor at values of the moderator(s):					Boot LLCI	Boot ULCI
Male	0.128		0.053	2.432*	0.024	0.232
Female	-0.062		0.065	-0.963	-0.189	0.065

* Note. LL, UL: Bias-Corrected 95% Confidence Interval (lower limit, upper limit); bias-corrected bootstrapping method is conducted for indirect effect estimates; * $p<.05$, ** $p<.01$, *** $p<.001$.

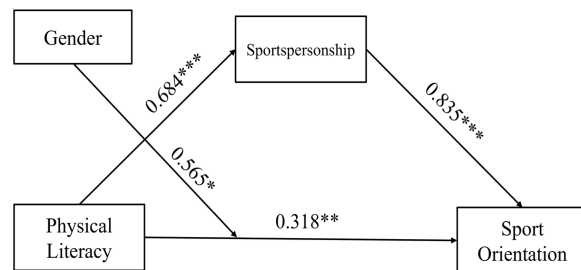


Figure 1. Finalized hypothesized model

in <Figure 1, Table 2>. First, physical literacy had a significant positive effect on sport orientation (Hypothesis 1 was accepted). Second, physical literacy had a significant positive effect on sportspersonship (Hypothesis 2 was accepted). Third, sportspersonship had a significant positive effect on sport orientation (Hypothesis 3 was accepted). Each path appeared meaningfully. In the next step, the moderating effect of gender on the relationship between physical literacy and sports orientation will be tested.

The Moderating Effect of Gender on the Relationship Between Physical Literacy and Sport Orientation

The moderating effects of physical literacy and gender on sport orientation are presented in Figure 2

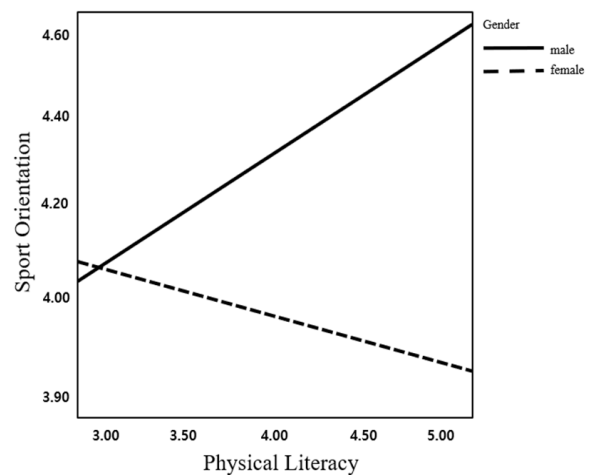


Figure 2. Interaction effects graph

and Table 2. The interaction between physical literacy and gender demonstrated a significant moderating effect on sport orientation for males only (Hypothesis 4 was accepted), with an effect size of 0.128 (95% CI: 0.024–0.232).

Discussion

This study reveals that perceived physical literacy among Korean university Taekwondo athletes is positively associated with both sportspersonship and

sport orientation. Notably, the influence of physical literacy on sport orientation was statistically significant only among male athletes. These findings suggest that physical literacy may function as a meaningful catalyst for promoting physical activity and fostering positive psychological outcomes in contemporary society. Furthermore, the insights derived from this research hold potential for enhancing university-level educational environments and advancing athlete development. In particular, as Taekwondo is a representative martial art that emphasizes both physical technicality and mental discipline, the integration of physical literacy into training may foster a more holistic development of athletes, aligning with the traditional values of Taekwondo such as respect and self-control.

First, perceived physical literacy was found to have a significantly positive effect on sport orientation. Although few existing studies have directly examined the relationship between physical literacy and sport orientation, related variables have been explored in prior research. For example, Melby et al. (2023) conducted a study involving 1,518 adolescents and reported that physical literacy had a significant positive impact on exercise participation and well-being. Physical literacy is not only associated with understanding and engaging in physical activity, but also with expressing healthy habits and realizing physical competence. In particular, it has been shown to contribute to lifelong well-being by fostering self- and social awareness, self-regulation, and responsible decision-making (Whitehead, 2007), thereby supporting the findings of the present study.

Next, perceived physical literacy was found to have a significantly positive effect on sportspersonship. This finding is supported by Toy (2023), who studied 173 university students majoring in physical education and found that those with higher levels of sport literacy demonstrated elevated levels of sportspersonship. Similarly, Choi et al. (2021) examined 372 college students participating in sports and reported that physical activity literacy positively influenced their level of exercise participation, further reinforcing the results of the present study. In essence, sport plays a crucial role in encouraging cultural socialization among

members of society and in fostering desirable levels of social behavior and interpersonal relationships (Toy, 2023). Moreover, physical movement within sport has been shown to positively influence social engagement, highlighting the essential role of physical literacy in promoting broader social functioning (Akgül, 2014). In the context of Taekwondo, sportspersonship is inherently linked to the martial arts spirit, where 'etiquette' (Ye-ui) is considered a core virtue.

Sportspersonship was found to have a significantly positive effect on sport orientation. This result is supported by Kenworthy (2011), who conducted a study involving five male basketball coaches and 48 male basketball players, reporting that sportspersonship enhances sport orientation. Sportspersonship encompasses adherence to social norms (such as showing respect and self-control), as well as socially considerate behaviors (e.g., cheering for a teammate or assisting an injured opponent). Furthermore, it reflects actions associated with moral and character development in adolescents and signifies the cultivation of positive relationships with teammates, referees, coaches, and opponents (Wandzilak, 1985). These findings suggest that while understanding game rules and striving for victory are important in the sports environment, reinforcing appropriate conduct is equally essential. Notably, athletes were observed to emulate their coaches' sportspersonship behaviors in an effort to improve their own sport orientation, thereby reinforcing the findings of the present study. Thus, when coaches consistently demonstrate exemplary conduct, sportspersonship can be effectively promoted within the sporting context.

Finally, the interaction between perceived physical literacy and gender was found to have a significant effect on sport orientation only among male participants. This finding is supported by Temel et al., (2024), who studied 393 fitness center participants and reported that male students exhibited higher levels of physical literacy compared to female students. In particular, individuals who engaged in physical activity more than four times per week demonstrated higher levels of perceived physical literacy and goal orientation, further reinforcing the results of the present

study. Similarly, Kontautienė and Beniusienė (2024) investigated 148 male and 139 female students and found that male students had higher levels of physical literacy, indirectly supporting the current findings. While high physical literacy in male athletes directly fosters a competitive sport orientation through technical confidence, female athletes may exhibit different motivational patterns within the combative context of Taekwondo, necessitating gender-specific coaching.

Scientific evidence also suggests that physical activity tends to decline among older female students (Lamanauskas & Armonienė, 2011). From a gender perspective, male students in grades 9–12 (42.3%) were reported to engage in more physical activity than their female counterparts (25.0%) (Rutkauskaitė & Bendaravičiūtė, 2017). According to the World Health Organization (WHO, 2010), only 27.3% of 15-year-old female students met the recommended level of physical activity, compared to 44.6% of male students. Based on these prior findings, it can be inferred that males are more actively engaged in physical activity, which may contribute to a higher level of understanding and awareness regarding physical activity.

In contemporary society, understanding physical literacy is of critical importance. Aspects such as exercising independently, operating fitness equipment, comprehending the principles of movement, and managing dietary intake for health purposes are all encompassed within the broader concept of literacy. Therefore, it is essential to develop diverse and ongoing educational programs aimed at promoting physical literacy. Although current discourse emphasizes various forms of literacy—such as physical literacy, health literacy, and sport literacy—research incorporating the concept of “digital sport literacy” remains limited. Future studies should prioritize clarifying the concepts underlying literacy-related terminology and deepen efforts to understand its multifaceted nature. Such efforts will require both theoretical exploration and practical educational strategies to effectively integrate literacy into health and sport education.

Conclusion and Suggestions

This study examined the positive relationships among perceived physical literacy, sportspersonship, and sport orientation in Korean university Taekwondo athletes. It was also found that the interaction between perceived physical literacy and gender significantly influenced sport orientation only among male athletes. The suggestions of this study are as follows.

First, the gender distribution of participants was imbalanced, with males accounting for 62.5% and females for 37.5%. Future research should aim to adjust participant ratios to better understand gender differences in perceived physical literacy. Second, the study focused exclusively on Taekwondo athletes, which limits the generalizability of the findings across different sports disciplines. Subsequent studies should expand the scope to include athletes from both individual and team sports to determine whether similar patterns emerge. Third, this study employed a perceived physical literacy scale to examine causal relationships among variables. However, there is currently no established scale specifically designed to measure sport literacy in elite athletes, particularly one applicable to the Korean context. Therefore, the development of a valid and reliable assessment tool tailored for use in Korea is urgently needed. Such efforts will contribute to the theoretical foundation of sport literacy and foster a proper sporting culture by enhancing understanding of game rules, ethics, and etiquette.

Author Contributions

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Conflict of Interest

The authors declare no conflict of interest.

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