

Exploring the relationship between goal orientation and perceived performance emphasizing the mediating effect of training flow and moderating effect of coaches' social support among elite taekwondo student-athletes

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One of the major challenges for youth sports coaches is improving athletes' perceived performance. Goal orientation and training flow were key factors influencing perceived performance. The objective of this study was to investigate the structural relationship between task orientation, ego orientation, training flow, and perceived performance emphasizing the mediating effect of training flow and moderating effect of coaches' social support. The present study analyzed data from 303 elite Taekwondo student-athletes attending one of 16 high schools in South Korea. SPSS 24.0 was used to conduct the frequency, correlation, and reliability analyses; AMOS 24.0 was used to perform confirmatory factor analyses and structural equation modeling; Jamovi was used to conduct a simple slope analysis for moderators. There was a positive impact of (a) task (0.530, $p < 0.001$) and (b) ego orientation (0.274, $p < 0.001$) on training flow as well as of (c) task orientation (0.231, $p < 0.01$), (d) ego orientation (0.404, $p < 0.001$), and (e) training flow (0.163, $p < 0.05$) on perceived performance. Moreover, training flow was found to partially mediate the relationship between ego orientation and perceived performance, and coaches' social support moderated the relationship between task orientation and perceived performance. The current study (1) provided support for the positive link between goal orientation and flow (2) identified a positive relationship between goal orientation and perceived performance in youth sports, (3) recognized a positive relationship between training flow and perceived performance, which heeds the argument of previous studies, (4) emphasized the importance of training flow in mediating the relationship between ego orientation and perceived performance, and (5) showed that coaches' social support moderates the relationship between task orientation and perceived performance.

KEY WORDS: Goal orientation, Training flow, Perceived performance, Social support, Taekwondo, Youth sport.

Introduction

Early Taekwondo focused primarily on improving self-defense skills but the focus has gradually turned to competition. This sport has achieved such a high status that it was officially adopted in the Olympics (Jung, 2012). Taekwondo does not focus only on physical training, but also on individual growth, teaching courtesy, inclusion, respect, and public order. This is part of what differentiates Taekwondo from other sports and has led to its spread from Korea to the rest of the world (Seonwoo & Jeong, 2021a). Kukkiwon (home of the World Taekwondo Academy) and the Korea Taekwondo Association, as well as many Korean Taekwondo instructors, have been making a great effort to popularize this activity in the rest of the world since the 1950s. In 2020, the World Taekwondo Federation reached 210 countries, with an estimate of 80 to 150 million members (Seon & Jeong, 2020). Moreover, since doing Taekwondo does not require expensive equipment or stadiums, it is an Olympic sport accessible to people in developing countries. This, in turn, contributes to the Olympic Games being a truly global sporting event.

As the birthplace of Taekwondo, South Korea has won the most medals in major events such as the Olympics and has established itself as a Taekwondo powerhouse. Nevertheless, in the 2020 Tokyo Olympics, South Korea won one silver and two bronze medals but failed to obtain the gold for the first time since the 2000 Sydney Olympics. The hypothesized reasons for this sluggish performance in recent years vary. Seonwoo and Jeong (2021) indicated that the number of teenagers practicing elite Taekwondo has decreased in recent years due to declining fertility rates in South Korea. Furthermore, teenagers are not as interested in pursuing elite Taekwondo careers because, locally, professional occupations are held in higher esteem (Lee, 2012). For that reason, coaches have to cultivate players with excellent performance based on a small pool of students, which can be seen as important for the sustained growth of the Korean Taekwondo industry. If Korean athletes continue to slump in the Olympics and other competitions as they do now, Korean companies should reduce or stop sponsoring Korean Taekwondo because it has no promotional effect when compared to the past. Reducing or stopping financial support could negatively affect Korea's plans to make Taekwondo an interesting sport and to globalize it. Therefore, it is important to explore factors that influence student-athletes' perceived performance in order to contribute to the sustainability of the Korean or worldwide Taekwondo industry. In addition, as the elite sport development has become an important area of sport policy and politics for governments around the world (Green, 2009), the significance of perceived performance in develop-

ing elite athletes could be applicable to other countries. Still, hosting elite sport events and winning Olympic medals are important to several countries because these factors could improve national pride and identity. Thus, improving perceived performance can be indispensable for any countries that hope to foster an elite sport.

Abundant research in sports psychology has explored the antecedents of perceived performance. For example, personality traits (e.g., agreeableness, conscientiousness, and openness) (Habib, Waris, & Afzal, 2020), psychological skills training (Lee & Ryu, 2020), and self-esteem (Yoon & Jang, 2020) are significant predictors of perceived performance. Likewise, according to sport psychology and performance meta-analyses conducted by Lochbaum et al. (2022), positive variables (e.g., cohesion, confidence, and mindfulness) were shown to have a moderate benefit effect to performance ($d=0.51$). Another study suggested that goal orientation is an important predictor of perceived performance (Kim, Choi, & Kim, 2014). This is because athletes feel competent and satisfied when they achieve their goals, which can lead to improvements in their perceived performance (Jeong, 2020). Within goal orientation theory, there are two achievement goal perspectives: task and ego orientation (Tracey et al., 2021). Task orientation refers to how much individuals have achieved their goals. For example, an individual derives competence and satisfaction when they acquire new skills, improve their performance, or exert maximal effort (Jaakkola, Ntoumanis, & Liukkonen, 2016). On the other hand, ego orientation refers to an individual's satisfaction or recognition of him or herself as a competent person when he or she outperforms others and completes a task with less effort than others (Jaakkola et al., 2016). Previous studies have indicated that task orientation rather than ego orientation was connected with perceived performance in young Taekwondo athletes (Kim, 2020; Moon, Kim, & Kim, 2020).

Although existing studies have explored the relationship between goal orientation and perceived performance, they have overlooked the mediating role of training flow. Flow can be viewed as the experience of 'going beyond time and space and completely falling into a specific object' (Csikszentmihalyi, 1990). In a sports setting, flow is experienced by athletes when they achieve a goal associated with a strong belief or requiring a large amount of willpower. This is closely related to internal needs, which can have a positive effect on individual growth (Csikszentmihalyi, 1997; 2000). Thus, athletes' training flow is recognized as an important predictor of performance (Habe, Biasutti & Kajtna, 2019). In addition, to better understand the relationship between goal orientation and perceived performance, this study will examine the moderating role of coaches' social support. Generally, social support

can be defined as the assistance and protection given to an individual by parents, teachers, or friends (Shumaker & Brownell, 1984). They can provide financial, emotional, and advisory assistance or protect them from the effects of stress (Moeini, Barati, Farhadian & Ara, 2018; Neneh, 2022). From a practical point of view, high social support from coaches is likely to increase perceived performance in a sports group. Previous studies have focused primarily on the direct effect of goal orientation on perceived performance with little attention to moderating factors (Jeong, 2020). To address this gap, the current study investigates the structural relationships between task and ego orientation, training flow, and perceived performance. Furthermore, the current study examines the mediating effects of training flow between task and ego orientation and perceived performance. Finally, this study explores the moderating effects of coaches' social support on these relationships.

Review of Literature

GOAL ORIENTATION THEORY

In the last several decades, achievement goal theory blossomed into one of the most popular theoretical perspectives on student motivation in educational contexts (Kaplan & Maehr, 2007; Meece, Anderman, & Anderman, 2006; Urdan & Kaplan, 2020). According to Lochbaum et al. (2016)' a quantitative review of the literature on task and ego goal orientation from 1989 to 2016, youth samples were almost half of all included studies. Ames (1992, p. 261) stated that "an achievement goal concerns the purposes of achievement behavior. It defines an integrated pattern of beliefs, attributes, and affect that produces the intentions of behavior". Theoretically grounded on achievement goal theory, goal orientation theory assumes that people can vary in the way they recognize accomplishment and evaluate perceived competence (Stavrou, Psychountaki, Georgiadis, Karteroliotis, & Zervas, 2015). Based on previous studies, Kaplan and Maehr (2007, p. 142) defined goal orientation as "situated orientations for action in an achievement task". Goal orientation represents how and why individuals attempt various objectives and specific standards. It does not concern the content of the specific objectives and standards (Urdan & Kaplan, 2020). As the author has mentioned, based on Nicholls (1984)'s study, Duda (1992) represented motivation as two predominant goal achievement perspectives: task orientation and ego orientation. These goal states point out 'what types of achievements do athletes feel are valuable?' and 'what can athletes subjectively conclude about

whether their perceived performance is successful?’ (Gregg, Jenny, & Hall, 2016). Task-oriented athletes rely on improving mastery, gathering experience, developing competence, gaining skill or knowledge, and performing their best (Hwang, Machida, & Choi, 2017). This means that their evaluation is self-referenced. In contrast, ego-oriented athletes focus on demonstrating superior ability and outperforming other athletes (Castillo et al., 2010). These goal orientations are regarded as orthogonal so that athletes can have a combination of task and ego orientation, each being low, moderate, or high (Gregg et al., 2016).

FLOW THEORY

Flow is defined as a cognitive state in which athletes focus on their perceived performance. Experiencing flow is considered enjoyable and intrinsically rewarding (Csikszentmihalyi, 1990; Jackson & Csikszentmihalyi, 1999). Generally, athletes experience flow when they set a clear goal and try to achieve it (Jackson & Csikszentmihalyi, 1999). This enables them to be fully absorbed in their activity (Stavrou, Psychountaki, Georgiadis, Karteroliotis, & Zervas, 2015). Flow consists of nine components: challenge-skill balance, clear goals, feedback, merging of action and awareness, sense of control, concentration, loss of self-consciousness, a transformation of time, and autotelic experience. Proper use of all nine components in a single activity can create an optimal state of arousal, positively impacting performance (Carter, River, & Sachs, 2013). Among these, the most noteworthy component is the balance between challenge and skill. The level of challenge describes the intrinsic or situational demands of the activity (Moneta and Csikszentmihalyi, 1996), while the level of athletic skill refers to the self-perceived ability to meet such demands (Jackson & Csikszentmihalyi, 1999). To reach an ideal level of challenge and skill, these must be well-matched, relatively high, and above a person’s average performance. This enables the athlete to experience flow (high skill and high challenge), which represents the optimal state for training (Stavrou et al., 2015). When athletes perceive that their skills surpass the perceived challenge of the activity, they are more likely to experience boredom (high skill and low challenge). On the other hand, when athletes perceive that the challenge of the competition exceeds their skills, they are more likely to experience anxiety (high challenge and low skill). Finally, when both the athlete’s current skill level and the present challenge are low, apathy (low skill and low challenge) could arise, which is considered the worst subjective experience (Moneta & Csikszentmihalyi, 1996). These

states are viewed as the four quadrants of the orthogonal model of flow theory (Stavrou et al., 2015).

SOCIAL SUPPORT

Many researchers have explored the definition of and attempted to measure social support. These include, for example, actual support received, perceived availability of support, face-to-face contact, and frequency of network contact (Walen & Lachman, 2000). However, most researchers point out that definitions of social support should include emotional and instrumental behaviors (Antonucci & Jackson, 1987). Walen and Lachman (2000, p. 7) proposed that of social support is “one’s perceived notion of the caring and understanding exhibited by the network.” In recent study, social support can be defined as “the extent to which individuals perceive others around them are available to them and are attentive to their needs” (Zysberg & Zisberg, 2022, p. 269). According to Goldsmith (2004), there are many types of social support. However, within the context of sport, researchers have suggested four specific types: tangible, informational, emotional, and esteem (Rees & Hardy, 2000). Tangible support encompasses “concrete instrumental assistance, in which a person in a stressful situation is given the necessary resources (e.g., financial assistance, physical help with tasks) to cope with the stressful event” (Cutrona & Russell, 1990, p. 322). Coaches provide athletes with up-to-date sporting equipment and proper injury, psychological, and rehabilitation treatments (Rees & Hardy, 2000). Informational support represents “providing the individual with advice or guidance concerning possible solutions to a problem” (Cutrona & Russell, 1990, p. 322). Coaches can provide great, instant, and constant feedback to athletes, teach them proper techniques or tactics to execute a movement and convey strategies to improve the team’s synchronicity (Rees & Hardy, 2000). Emotional support refers to “the ability to turn to others for comfort and security during times of stress, leading the person to feel that he or she is cared for by others” (Cutrona & Russell, 1990, p. 322). Coaches reassure athletes, help pull them out of slumps, and give them courage and confidence during difficult times (Rees & Hardy, 2000). Esteem support includes “the bolstering of a person’s sense of competence or self-esteem by other people. Giving individual positive feedback on his or her skills and abilities or expressing a belief that the person is capable of coping with a stressful event are examples of this type of support” (Cutrona & Russell, 1990, p. 322). To achieve this, coaches can give athletes motivational talks (Rees & Hardy, 2000).

RESEARCH HYPOTHESES

Previous studies have suggested that a positive relationship exists between goal orientation and flow. For instance, Kim and Oh (2021) investigated the effect of athlete goal orientation on flow in Taekwondo Poomsae, a series of attack and defense forms. They showed that task orientation is a critical determinant of flow. Jeong (2020) examined the relationships among goal orientation, flow, perceived performance, and psychological well-being in amateur soccer players, and found that both task and ego orientation had a positive effect on flow. A study by Gam and Kim (2017) explored the influence of athletes' goal orientation on flow in Kumdo, a modern Korean martial art derived from Japanese Kendo. They found that task orientation was an important factor in achieving flow. On the other hand, the relationship between goal orientation and perceived performance has received relatively little attention. However, a study by Kim, Choi, and Kim (2014) investigated the structural relationship between goal orientation, self-leadership, and perceived performance in fencers. They found that goal orientation is an antecedent of perceived performance. Therefore, it is reasonable to propose the following hypotheses:

H1-1. Task orientation will positively influence training flow among Taekwondo student-athletes.

H1-2. Ego orientation will positively influence training flow among Taekwondo student-athletes.

H2-1. Task orientation will positively influence perceived performance among Taekwondo student-athletes.

H2-2. Ego orientation will positively influence perceived performance among Taekwondo student-athletes.

Previous studies have provided support for the flow-performance link. For example, Park (2021) assessed the structural relationship between flow, self-efficacy, and performance among golfers, and reported that flow played a key role in improving performance. Jeon and Cho (2019) analyzed the effect of self-management on flow and perceived performance in student-athletes, and suggested a direct relationship between the latter two variables. Lee and Hwang (2018) tested the relationship between charismatic leadership, leader trust, flow, and performance in the Taekwondo industry, and showed that flow had a significant influence on performance. Given the positive effects found in previous literature, the present study predicts that training flow will positively affect perceived performance:

H3. Training flow will positively influence perceived performance among Taekwondo student-athletes.

As the author has mentioned above, previous studies suggest that goal orientation is likely to influence flow and performance (Gam & Kim, 2017; Jeong, 2020; Kim & Oh, 2021; Kim, Choi, & Kim, 2014), with flow also affecting performance (Jeon & Cho, 2019; Lee & Hwang, 2018; Park, 2021). These results indicate strong support for the intervening role of training flow between goal orientation and perceived performance. With respect to the moderating effects of coaches' social support, existing research showed that goal orientation affects performance. Within the context of sports, if athletes receive social support from a head coach, they are more likely to improve their performance (Rees, Ingledew, & Hardy, 1999). However, since social support and flow are highly correlated (Kim & Seo, 2020), the current study will not examine the moderating role of social support on the relationship between training flow and perceived performance. Based on empirical evidence from existing studies, the current study postulates the following hypotheses:

H4-1. Training flow will mediate the relationship between task orientation and perceived performance among Taekwondo student-athletes.

H4-2. Training flow will mediate the relationship between ego orientation and perceived performance among Taekwondo student-athletes.

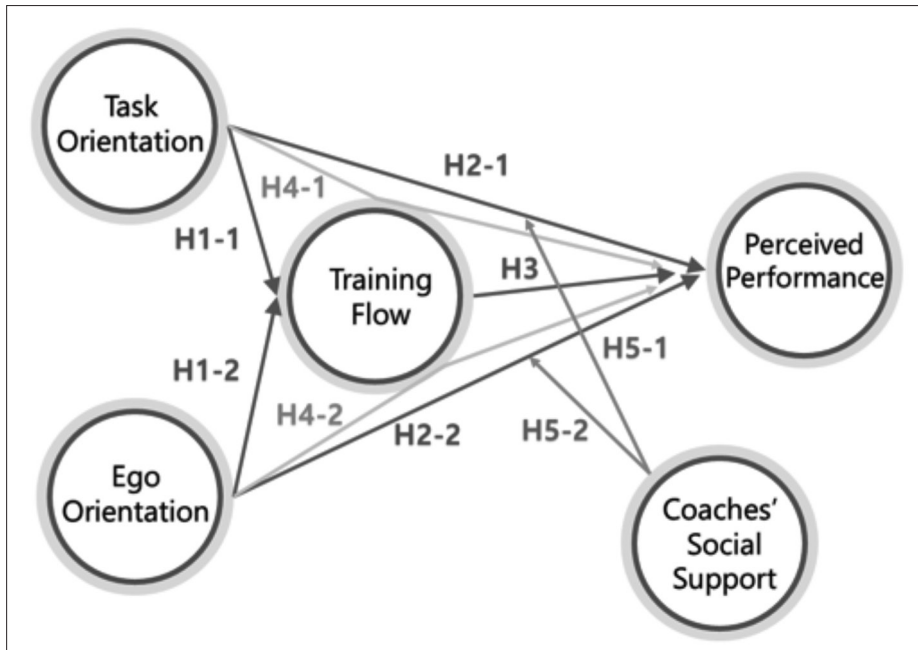


Fig. 1. - Proposed conceptual model.

H5-1. Coaches' social support will moderate the relationship between task orientation and perceived performance among Taekwondo student-athletes.

H5-2. Coaches' social support will moderate the relationship between ego orientation and perceived performance among Taekwondo student-athletes.

Based on the preceding thorough review of previous studies, the present study proposed the conceptual model shown in Figure 1.

Method

Sampling and data collection

The present study used convenience sampling. The author distributed the survey to elite Taekwondo student-athletes involved in a mentoring program who attended one of 16 high schools in Seoul, Incheon, and Suwon city in South Korea. Due to the pandemic, the present study was carried out online. The questionnaires were collected using the Naver (a South Korean online platform) platform. Since the competitive season of elite Taekwondo begins in early April and ends in late November, this study collected data from athletes between January 1st and 30th, 2022. The author contacted 16 high school teachers and coaches using phone, fax, and e-mail and received their student-athletes' e-mail addresses or Kakao Talk (the most widely used messaging app for smartphones in South Korea) IDs after obtaining mutual consent. In total, 320 respondents completed the survey, but 17 were subsequently removed due to incomplete data. This study analyzed the remaining 303 responses. This study gathered demographic information including sex (male: 76.2%, $n = 231$; female: 23.8%, $n = 72$), grade (first-year students: 31.7%, $n = 96$; second-year students: 35.6%, $n = 108$; third-year students: 32.7%, $n = 99$), and Taekwondo experience (less than 2 years: 7.9%, $n = 24$; more than 2 years but less than 4: 34%, $n = 103$; more than 5 years but less than 7: 35%, $n = 106$; 8 or more years: 23.1%, $n = 70$).

Measurement

The survey instrument was adapted from scales used in previous studies. The questionnaire consisted of five main sections: (1) goal orientation, (2) training flow, (3) perceived performance, (4) coaches' social support, and (5) demographic information. To measure goal orientation, this study used the Task and Ego Orientation in Sport Questionnaire (TEOSQ: Duda & Nicholls, 1992), as well as ten items (5 for task orientation and 5 for ego orientation) from Tracey et al. (2021) rated on a 5-point Likert scale ranging from strongly disagree (1) to strongly agree (5). Training flow was assessed using four items from the sports version (Kim, 2011) of Kanungo (1982). Coaches' social support was assessed using four items from the youth sports version (Cho, 2015) of Park (1985) and Nolten (1994). Performance is more difficult to evaluate because of its complexity and variety of components. The instrument used in this study was derived from Mamassis and Doganis (2004). It was a set of five questions related to each aspect of perceived performance, assessed on a five-point scale (from 1—"not good at all" to 5—"very good"). Two sports psychology professors and a sports sociology professor were asked to verify the face validity of these items.

Data Analysis

SPSS was used to conduct the frequency, correlation, and reliability analyses. AMOS was used to perform confirmatory factor analysis and to apply structural equation modeling. Jamovi was used to conduct a simple slope analysis for moderators.

Validity and Reliability

The present study employed confirmatory factor analysis (CFA) with maximum likelihood estimation to confirm the dimensionality of the measurement model using AMOS (version 24). The goodness-of-fit indices for the CFA ($\chi^2/df = 2.820$, IFI = 0.913, TLI = 0.900, CFI = 0.913, and RMSEA = 0.078) were all within the recommended ranges (Hooper, Coughlan, & Mullen, 2008).

To confirm convergent validity, the current study calculated factor loadings, construct reliability (CR), and averaged variance extracted (AVE) based on the measurement model. As shown in Table I, all factor loadings (0.615 – 0.925) were statistically significant ($p < 0.001$) and greater than the cutoff value of 0.50 (Hair, Anderson, Babin, & Black, 2010). All CR values (0.880 – 0.965) exceeded the minimum requirement of 0.7, and all AVE values (0.596 – 0.846) exceeded the recommended value of 0.5 (Tabachnick & Fidell, 2007). Hence, convergent validity was satisfactory.

To consider the discriminant validity satisfactory, the diagonal elements (the bolded numbers) in Table II should be greater than the off-diagonal elements, which is the case. Comparing all correlation coefficients with the square roots of AVE demonstrated satisfactory discriminant validity.

Reliability estimates (Cronbach's alpha) for task orientation, ego orientation, training flow, coaches' social support, and perceived performance (0.877 – 0.946) were above the recommended threshold of 0.7, indicating that the measures were reliable (Fornell & Larcker, 1981) (Table III).

Results

MODEL FIT AND STRUCTURAL MODEL

The current study employed structural equation modeling (SEM) to explore the hypothesized relationships. All goodness-of-fit indices for the model indicated an acceptable model fit ($\chi^2/df = 2.940$, IFI = 0.904, CFI = 0.903, and RMSEA = 0.079). The present study used this model to test hypotheses 1-1, 1-2, 2-1, 2-2, and 3. As shown in Figure 2, the relationship between task orientation and training flow (H1-1) was significant (0.530, $p < 0.001$). Significant paths emerged from ego orientation to training flow (0.274, $p < 0.001$), supporting H1-2. Task orientation had a significant positive effect on perceived performance (0.231, $p < 0.01$), which supports H2-1. The path coefficient from ego orientation to perceived performance was positive and statistically significant (0.404, $p < 0.001$),

TABLE I
Summary Of Validity Estimates

Scale item		Standardized loadings	CR	AVE
Task Orientation	1	0.858	0.965	0.846
	2	0.861		
	3	0.925		
	4	0.909		
	5	0.868		
Ego Orientation	1	0.812	0.895	0.631
	2	0.753		
	3	0.824		
	4	0.841		
	5	0.766		
Training Flow	1	0.896	0.944	0.813
	2	0.918		
	3	0.895		
	4	0.615		
Coaches' Social Support	1	0.616	0.944	0.812
	2	0.848		
	3	0.911		
	4	0.888		
Perceived Performance	1	0.738	0.880	0.596
	2	0.777		
	3	0.777		
	4	0.788		
	5	0.775		

supporting H2-2. H3 was supported as training flow had a significant positive relationship with perceived performance (0.163, $p < 0.05$).

MEDIATING EFFECT OF TRAINING FLOW

To test the mediating effects of training flow, the current study followed Baron and Kenny's (1986) general guidelines. This study tested the significance of the indirect effects using Preacher and Hayes's (2008) bootstrap procedure. The results are shown in Table IV. Concerning H4-1, the direct

TABLE II
Correlations Among The Constructs

	Task orientation	Ego orientation	Training flow	Coaches' social support	Perceived performance
Task orientation	0.920				
Ego orientation	0.632**	0.794			
Training flow	0.685**	0.596**	0.902		
Coaches' social support	0.664**	0.517**	0.690**	0.901	
Perceived performance	0.575**	0.602**	0.533**	0.507**	0.772

** $p < 0.01$

TABLE III
Reliability Estimates

Variable	Cronbach's alpha
Task orientation	0.946
Ego orientation	0.893
Training flow	0.895
Coaches' social support	0.887
Perceived performance	0.877

effect without the mediator was significant (0.317, $p < 0.001$). The relationship coefficient decreased from 0.317 to 0.231 and was significant when training flow was included as a mediator. The indirect effect of task orientation on perceived performance via training flow was not significant, going against H4-1. With respect to H4-2, the direct effect without the mediator was significant (0.450, $p < 0.001$). The relationship coefficient decreased from 0.450 to 0.404 when training flow was incorporated as a mediator. The indirect effect of ego orientation on perceived performance via training flow was significant while the confidence interval did not include zero (CI = 0.007 – 0.101), which indicates partial mediation, supporting H4-2.

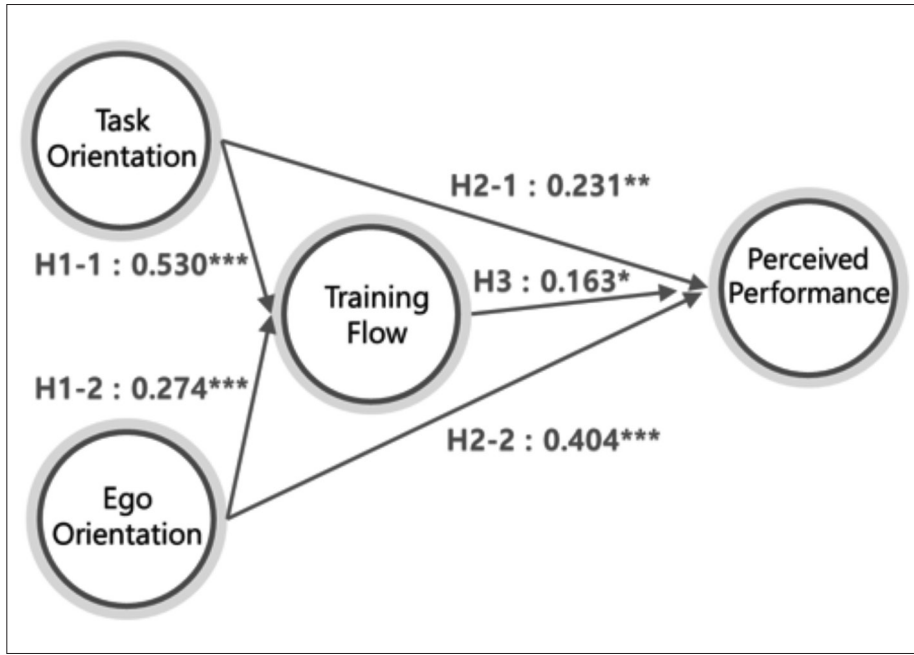


Fig. 2. - Structural model results. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Moderating effect of coaches’ social support

As hypothesized in H5-1, task orientation ($Z = 9.47, p < 0.001$), coaches’ social support ($Z = 7.03, p < 0.001$), and their interaction ($Z = 4.75, p < 0.001$) had significant effects on perceived performance. To further analyze the moderating effect of coaches’ social support, the current study divided values into three groups: low (Mean – 1SD), average, and high social support (Mean + 1SD). The present study performed a simple slope analysis to determine whether the moderating variable (coaches’ social support) influenced the relationship between the predictor variable (task orientation) and the dependent variable (perceived performance). The current study found that in all three groups (low, average, and high social support groups), task orientation had a significant effect on perceived performance ($Z = 9.25, 5.49, 8.60$, respectively; $p < 0.001$ in all cases), supporting H5-1. Results are shown in Table V.

Ego orientation ($Z = 10.20, p < 0.001$) and coaches’ social support ($Z = 6.80, p < 0.001$) had significant impacts on perceived performance, but there was no significant interaction between ego orientation and coaches’ social support, rejecting H5-2. Results are shown in Table V.

TABLE IV
Mediating Effects Of Training Flow

Relationships	Direct effects without the mediator	Direct effects with the mediator (CI)	Indirect effects (CI)	Mediation hypotheses
H4-1. Task orientation – training flow – perceived performance	0.317***	0.231* (0.050 – 0.402)	0.086 (0.006 – 0.197)	Not supported
H4-2. Ego orientation – training flow – perceived performance	0.450***	0.404** (0.277 – 0.621)	0.045* (0.007 – 0.101)	Supported

*** $p < 0.001$, ** $p < 0.01$, $p < 0.05$; bootstrap confidence in parentheses, CI = confidence interval.

TABLE V
Moderating Effects Of Coaches' Social support

H5-1	Moderation	Estimate	SE	Z	<i>p</i>	
	Task orientation	0.518	0.055	9.47	< 0.001	
	Coaches' social support	0.417	0.060	7.03	< 0.001	
	Task orientation × Coaches' social support	0.341	0.072	4.75	< 0.001	
		Estimate	SE	Z	<i>p</i>	
	Simple slope analysis	Average	0.518	0.056	9.25	< 0.001
		Low (-1SD)	0.308	0.056	5.49	< 0.001
		High (+1SD)	0.728	0.085	8.60	< 0.001
H5-2	Moderation	Estimate	SE	Z	<i>p</i>	
	Ego orientation	0.430	0.042	10.20	< 0.001	
	Coaches' social support	0.397	0.058	6.80	< 0.001	
	Ego orientation × Coaches' social support	0.102	0.072	1.40	0.160	

Discussion

The objective of this study was to examine the relationship between task and ego orientation, training flow, and perceived performance. Furthermore, this study investigated the mediating effects of training flow between task orientation and perceived performance and ego orientation and perceived performance. Finally, it explored the moderating effects of coaches' social

support on these relationships. The results of the current study have several theoretical and practical implications.

The results supported the positive link between goal orientation and flow, which remains the subject of ongoing debate. Some researchers argue that ego orientation does not influence flow. For example, Park (2019) found an influence of goal orientation on tenacity and flow, showing that ego orientation did not affect flow. Yoon (2017) explored the effect of goal orientation on confidence and flow among professional female golfers, and highlighted that ego orientation did not lead to flow. On the other hand, others indicate that ego plays a crucial role in flow. For instance, Kim (2018) investigated the relationship between boxers' goal orientation, tenacity, and flow, and found that ego orientation directly affected flow, in line with Jeong (2020). Thus, coaches and researchers should not underestimate the importance of ego orientation in predicting flow. In addition, the present study showed that task orientation had more influence than ego orientation on training flow. This means that focusing on the completion of particular tasks is more important than focusing on achieving superior status in a social comparison for training flow in student-athletes. In other words, training flow is primarily motivated by personal improvement, mastery, and achievement of higher ability in this group. Thus, our findings suggest that it would be worthwhile for coaches to make greater investments in improving task orientation to achieve training flow.

Furthermore, the positive relationship between goal orientation and perceived performance can be exploited to improve performance in youth sports. Previous studies exploring the relationship between goal orientation and perceived performance mainly focused on adult athletes. For example, a recent study by Kang and Park (2021) tested the influence of social support on goal orientation and perceived performance in university athletes and revealed that both task and ego orientation were key influencers of perceived performance. Jung (2020) explored the relationship between goal orientation, perceived motivational climate, and perceived performance in combat sports athletes (20 to 23-year-olds), and found that goal orientation was linked to perceived performance. The result of this study is consistent with previous studies and indicates that this relationship extends to youth sports. Hence, goal orientation should be viewed as pivotal in boosting perceived performance. In addition, the current study found that ego orientation was a better predictor of perceived performance than task orientation. This means that student-athletes tend to perceive improvements in their performance when they win a game, or their competence is superior to others. In reality, all elite sports prepare athletes to compete in this way. Since sports are an ego-driven field, it is understandable that athletes have an ego orientation.

However, since one-sided orientation can have negative effects, finding a healthy balance between ego and task orientation is ideal.

By providing evidence for a positive relationship between training flow and perceived performance, the present study furthers this perspective, suggested by previous studies. For example, Park, Park, Yoo, and Han (2021) analyzed the effect of leader trust on flow and perceived performance among 532 Taekwondo athletes, and showed that flow had a significant effect on perceived performance. A study carried out by Han and Lee (2021) explored the effect of university Taekwondo athletes' flow and competitive state anxiety on perceived performance, and found that flow affected perceived performance. Kwon, Jang, Lee, Lee, and Kim (2020) examined the structural relationship between flow and perceived performance in athletes and found a causal relationship. Hence, if coaches provide useful exercise programs to athletes, they are more likely to concentrate on training and enhance their perceived performance.

The current study emphasized and provided evidence for the important role of training flow in meditating the relationship between ego orientation and perceived performance, as well as between goal orientation and perceived performance. This is particularly relevant since the latter relationship has been largely ignored by existing studies. In particular, my findings reveal a partial mediating effect of flow. This result is important for the sports psychology literature because it shows that while ego orientation is a key driver of perceived performance, the level of training flow also plays a critical role. This finding helps bridge a gap in the literature by providing empirical evidence of the indirect effect of training flow on perceived performance. Contrary to our initial expectation, there was no evidence of a mediating effect of training flow on the relationship between task orientation and perceived performance. A plausible explanation for this is that task-oriented athletes have higher performance, irrespective of the level of flow.

To the best of my knowledge, this study represents the first attempt to investigate the moderating role of social support on the relationship between goal orientation and perceived performance. More specifically, this study shows that coaches' social support is a moderating variable between task orientation and perceived performance. Intuitively, if athletes receive physical help with tasks, constant feedback, encouragement in difficult times, and motivational talks from their coaches, they are able to concentrate on their tasks more fully and improve their perceived performance. Thus, sports coaches should take note of the important role of social support in stimulating athletes' performance. In particular, the support provided by coaches is an important coping resource for young athletes dealing with their parents' dreams, peer pressure, and social expectations. Many young elite athletes are

concerned with achieving their personal goals and ensuring future success. Thus, coaches should discuss athletes' potential for development, advice on how to prepare for the next competition, and communicate openly so that student-athletes can focus on achievable goals (Seonwoo & Jeong, 2021).

Conclusion

The purpose of this study was to examine the structural relationship between task orientation, ego orientation, training flow, and perceived performance emphasizing the mediating effect of training flow and moderating effect of coaches' social support. The conclusion which can be drawn from this study is these: The present study (1) provided support for the positive link between goal orientation and flow (2) identified a positive relationship between goal orientation and perceived performance in youth sports, (3) recognized a positive relationship between training flow and perceived performance, which heeds the argument of previous studies, (4) emphasized the importance of training flow in mediating the relationship between ego orientation and perceived performance, and (5) showed that coaches' social support moderates the relationship between task orientation and perceived performance.

Despite the meaningful results of the present study, there were some limitations. First, it would be fruitful to explore additional antecedents of flow and perceived performance to broaden our understanding of the forces that drive flow and performance (e.g., leadership, leader trust, self-management, retirement anxiety, sport-confidence, and fighting spirit). Second, it would be of interest to explore other potential mediators (e.g., athlete satisfaction) in order to provide a more comprehensive framework. Third, it would be of value to explore other moderating variables such as emotional intelligence and resilience to increase the accuracy of the proposed model. Finally, the results of this study may not be applicable to other geographical areas as South Korea may have unique characteristics. Hence, similar studies should be carried out in other places in order to generalize the results of this study.

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