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Structural Relationship between Self-Leadership and Grit and Performance of Taekwondo Players: Focusing on the Multiple Mediations of Grit

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Abstract

The purpose of this study is to analyze the structural relationship among self-leadership, grit, and performance.Specifically, self-leadership was selected as an independent variable, two dimensions of grit were selected as mediator variables, and performance was selected as a dependent variable. This structural equation model is based on previous studies.The subjects of this study were middle and high school Taekwondo players, and the survey was collected using the online survey system KSDC (Korean Social-Science Data Center). The sampling method was a non-probability sampling method, convenience sampling method.A total of 367 copies were collected through this process, and 355 copies were used as the final valid samples after excluding the insincere data.Data processing was done with SPSS 23 for frequency analysis, exploratory factor analysis and reliability analysis. Also, AMOS 21 was used for confirmatory factor analysis and structural equation model analysis. The results of the analysis are as follows: First, self-leadership had a positive effect on bothi interest consistency grit and effort persistence grit. Second, it was found that both interest consistency grit and effort persistence grit have a positive effect on performance.Third, self-leadership had a positive effect on performance.

Keywords: *Taekwondo Players, self-leadership, interest consistency grit, effort persistence grit, performance.*

Self-leadership is a concept that appeared in the process of forming an organic organizational structure, a peace-of-war, by reducing the vertical and horizontal division of labor, which was vertical and hierarchical in the past, as the rapid growth and change of the world society in the 1980s brought innovative changes not only to the changes in the management environment but also to people's attitudes, perspectives and values in the past. 'and the importance of individual members' competence, that is, the importance of internal members and human resources of the organization, has been emphasized, so unlike the existing leadership, it has focused on internal members rather than leaders or management [1].

This self-leadership is a concept developed by Manz and refers to the process of exerting influence on oneself for his growth and development. The preceding research author identified self-leadership as a process for increasing the efficiency of individuals and an intrinsic inquiry process for asking themselves what they really want and doing what they want in their daily lives.

Employees with high self-leadership are self-motivated and self-motivated. Rather than obeying the leader's unilateral instructions, they build confidence in their jobs and carry out innovative behaviors [4]. Addition, in

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a study on airline cabin attendants, self-leadership helped them to control and manage their emotions well and to have the belief that they can do their job well, so it ultimately leads to positive behavior and expression of language to customers [5].

This research has been accumulated in self-leadership management, pedagogy, psychology, etc., and studies have been conducted on athletes in the field of sports. In the sports field, self-leadership has been shown to be effective in improving the confidence of athletes because it is a useful leadership that renews competency as an athlete by creating the capacity for athletes to solve problems on their own, and by allowing them to exercise autonomy and application of exercise performance [6].

Therefore, the study on self-leadership of Taekwondo athletes was conducted through theoretical background and academic trends based on previous studies. Specifically, this study aims to provide theoretical and practical implications by analyzing the structural equation model consisting of self-leadership as an independent variable, grit as a mediator, and performance as a dependent variable.

2. Study Hypothesis

The current study established hypothesis based on theoretical bases from previous literature. The causal relationships among self-leadership, grit(inter consistency grit, effort persistence grit), performance were the focus of the study. The following sections discuss the detailed relationship between these concepts, based on the model of the current research.

2.1 The Relationship between Self-Leadership and Grit(inter consistency grit, effort persistence grit) of Taekwondo Players

The empirical study on the relationship between leadership and grit is accumulating research on the relationship between issue leadership and coaching leadership and transformational leadership. Research has been recently discovered to investigate the effect of self-leadership on grit. First, in the study on the effects of self-leadership, grit, market development, and global mind on the entrepreneurial intention of college students, Kim' study(2020) reported that self-leadership had a significant effect on grit [7]. In addition, Lee' study(2020) reported that self-leadership had a significant effect on grit in the study on the effect of super leadership perceived by airline cabin crew on cognitive flexibility through self-leadership and grit [8]. However, the study on the relationship between self-leadership and grit was not conducted in the early stage of the study, so this study could have a very important meaning.

Hypothesis 1a~1b: Self-leadership of Taekwondo players will have a positive effect on grit(1a: inter consistency grit, 1b: effort persistence grit).

2.2 The Relationship between Grit(inter consistency grit, effort persistence grit) and Performance of Taekwondo Players

In a study on the effects of the college Taekwondo players' grit on their perceived performance, Park and Han' study(2019) reported that the effort continuity, a sub-factor of grit, had a positive effect on their perceived performance, and Shin' study(2020) reported that the grit of university Taekwondo players had a positive effect on their perceived performance in a study on the effects of the university Taekwondo players' grit on their performance [9-10]. And Lee and Kang' study(2019) reported that the grit of university Taekwondo players had a positive effect on the performance in the study on the effect of university Taekwondo leaders'

autonomy support coaching behavior on the performance of the athletes. Based on these previous studies, the following hypotheses were set up [11].

Hypothesis 2a~2b: Grit(2a: inter consistency grit, 2b: effort persistence grit) of Taekwondo players will have a positive effect on performance.

2.3 The Relationship between Self-Leadership and Performance of Taekwondo Players

Looking at the empirical studies on self-leadership and performance. First, Guo' study(2020) found that in a study on the mediating effect of self-leadership and coping with stress on the relationship between emotional intelligence and perceived performance of high school athletes in China, self-leadership was related to perceived performance reported to have a positive effect [12]. In addition, Cho' study(2011) reported that the higher the self-leadership, such as constructive thinking patterns and natural rewards, the higher the self-leadership, the more improved the players' performance in a study on the effects of self-leadership on exercise commitment and performance of middle and high school golf players. Based on these previous studies, the following research hypotheses were established [13].

Hypothesis 3: Self-leadership of Taekwondo players will have a positive effect on performance.

2.4 The Multi-Mediated Effect of Grit on the Relationship between Self-Leadership and Performance of Taekwondo Players

The following Figure 1 shows a model built around the hypothesis of this study.

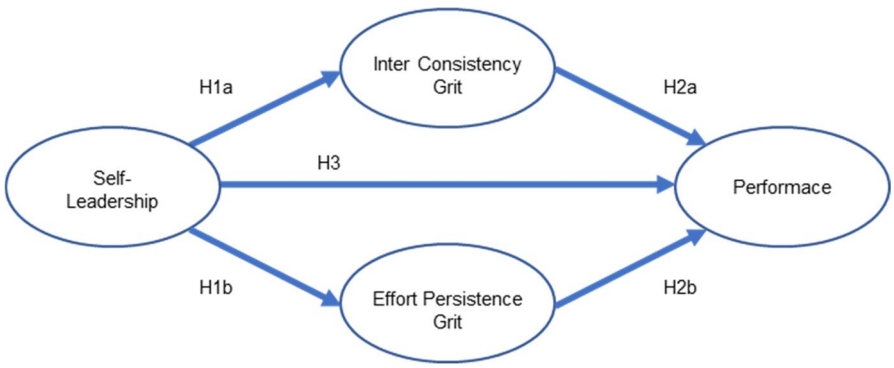

Figure 1. Study model

3. Research Method

3.1 Research Subjects

This study selected middle and high school taekwondo players located across the country as the population. sampling method data were collected using the online survey system KSDC(Korean Social-Science Data Center) using the convenience sampling method, which is a non-probability sampling method. The questionnaire was designed to be answered by the self-evaluation method. The research was conducted by explaining the purpose of the survey to middle and high school Taekwondo players who were promised in advance when the national Taekwondo competition was held. The survey period was 9 months from August 2020 to April 2021. Through this process, 355 copies out of a total of 367 were used as final effective samples,

excluding 11 unfaithfully written copies.

3.2 Research Tools

The research tool is questionnaire, and the questionnaire that confirmed validity and reliability in previous studies was modified and supplemented to suit this study to measure the three concepts used in the study. The final questionnaires used in this study were measured with 10 self-leadership questions, 5 inter consistency grit questions, 5 effort persistence grit questions, and 5 performance questions.

4. Results

4.1 Analysis of validity and reliability of exogenous variables

For the parceling of items, exploratory factor analysis was conducted on self-leadership, an exogenous variable. The method of exploratory factor analysis was used by Varimax, which is a right angle rotation, and the question above 0.5 factor load was adopted. The exploratory factor analysis of the self-leadership satisfied the criteria of KMO and Bartlett's test, and it was analyzed into 3 dimensions and 10 items. As are shown in Table 1 the values of Cronbach's α in all factors are over .7 suggested by Nunnally & Bernstein thus proving the internal consistency of all the factors [14].

Table 1. Exploratory factor analysis and reliability of self-leadership

Item	Cnstructive Tinking	Goal Achievement Behavior	Vluntary Acion Intrinsic Reward	h^2
1	**.814**	.289	.292	.831
2	**.832**	.259	.316	.859
3	**.796**	.369	.253	.834
4	**.798**	.409	.120	.819
5	.306	.450	**.761**	.875
6	.284	.385	**.811**	.886
7	.335	**.759**	.374	.828
8	.385	**.761**	.387	.878
9	.425	**.746**	.315	.837
10	.372	**.752**	.359	.832
Eigenvalue	3.379	3.082	2.018	
Variance(%)	33.791	30.819	20.175	
Accumulation(%)	33.791	64.610	84.786	
Cronbach'α	.930	.872	.938	
Kaiser-Meyer-Olkin=.937 Bartlett's test=3487.130, *df*=45, *Sig*=.000				

4.2 Analysis of validity and reliability of measurement model

The parceling of items was made based on the results of exploratory factor analysis on self-leadership, which is an exogenous variable. The confirmatory factor analysis was conducted on the whole measurement model. The suitability of confirmatory factor analysis was evaluated to confirm the optimal conditions of the structure, and the results and the variable composition and the results are shown in Table 2. The confirmatory factor analysis showed that the suitability was satisfactory for TLI=.915, CFI=.923, and RMSEA=.072. In addition, all the scores of the standardized regression weights(over .5), the value of average variance explained

(AVE) and construct reliability (over .7) were more than the standard value showing the satisfactory convergent validity [15].

Fornell & Larcker stated that there is discriminant validity between the two constructs if the value of AVE of each construct is more than the squared value of the correlation coefficient [16]. Therefore, the value of AVE presented in Table 3 was compared with the squared value of the correlation coefficient of each concept in the correlation analysis. As the value of AVE is more than the squared value of the correlation coefficient, the scales used in this study have discriminant validity.

After the verification of convergent validity and discriminant validity, Cronbach's α testing was conducted for the verification of the reliability of the internal consistency of each factor. As can be seen in Table 2, the Cronbach's α value for all factors is above .7 as suggested by Nunnally & Bernstein, which was presented earlier, demonstrating the internal consistency of all factors.

Table 2. Confirmatory factor analysis and reliability of measurement model

Factors	Item	B	*β*	standardized error variance	*t*	AVE	C.R	Cronbach's α
Self -Leadership	Cnstructive Tinking	1	.803	.355		.761	.905	.900
	Goal Achievement Behavior	1.245	.955	.088	21.225***			
	Vluntary Acion Intrinsic Reward	1.157	.852	.274	18.741***			
Interest Consistency Grit	1	1	.770	.407		.689	.917	.917
	2	.953	.729	.469	14.416***			
	3	1.257	.839	.296	17.061***			
	4	1.241	.879	.227	18.077***			
	5	1.286	.920	.154	19.055***			
Effort Persistence Grit	1	1	.801	.358		.695	.919	.917
	2	1.094	.863	.255	18.900***			
	3	1.063	.786	.382	16.620***			
	4	1.146	.916	.161	20.511***			
	5	1.001	.795	.368	16.867***			
Performance	1	1	.790	.376		.684	.915	.914
	2	1.123	.855	.269	17.932***			
	3	1.247	.860	.260	18.072***			
	4	1.122	.814	.337	16.837***			
	5	1.197	.814	.337	16.825***			

***p<.001

Table 3. Correlation analysis of measurement model

Factors	1	2	3	4
Self-Leadership	1			
Interest Consistency Grit	.100**	1		
Effort Persistence Grit	.752**	.217**	1	
Performance	.552**	.219**	.553**	1

**p<.01

4.3 Hypothesis verification result

The test results of the hypothesis of the path analysis and path of the research model are shown in the table 4 and figure 2 below.

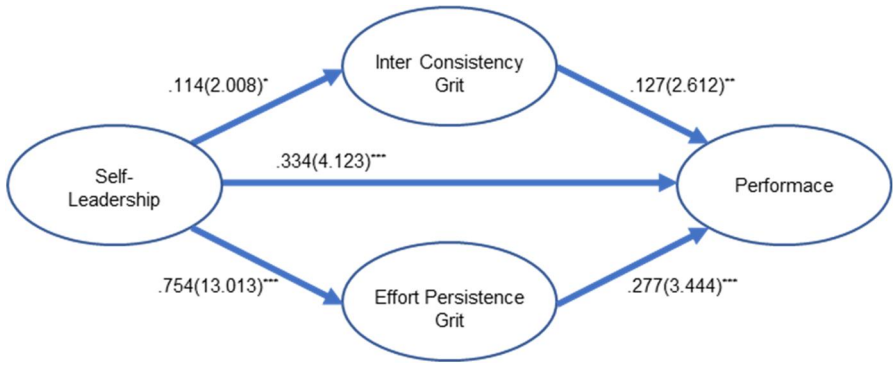

Figure 2: Result model

Table 4. Hypothesis verification result

Hypothesis				Regression Weights	Standardized regression weights	Standard error	C.R	Result
H1a	Self-Leadership	→	Interest Consistency Grit	.170	.114	.085	6.185*	O
H1b	Self-Leadership	→	Effort Persistence Grit	.964	.754	.074	13.524***	O
H2a	Interest Consistency Grit	→	Performance	.112	.127	.043	12.053**	O
H2b	Effort Persistence Grit	→	Performance	.287	.277	.083	18.248***	O
H3	Self-Leadership	→	Performance	.443	.334	.107	8.322***	O

*p<.05, **p<.01, ***p<.001 / x^2(130, N=355)=425.840, p=0.000, TLI=.915, CFI=.923, RMSEA=.072

4. Conclusion

In order to provide theoretical and practical implications by conducting a study on self-leadership for Taekwondo athletes, a structural equation model was established based on previous studies and empirical analysis showed that self-leadership had a positive effect on both effort consistency grit and interest continuance grit, and these two dimensions of grit had a positive effect on performance. Also, self-leadership, a poisonous variable, has a direct effect on performance, and it shows the same context as the results of previous studies that established the hypothesis in this study.

The mediating effect of two grits on the relationship between self-leadership and performance was partially mediated, and the effort-continuing grit showed a strong mediating effect on performance. Based on these empirical results, leaders should strengthen their own leadership by introducing and managing programs that strengthen their leadership. This strong self-leadership increases the grit of two dimensions, which will increase the performance of performance..

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