The Relationship Between Achievement Goal Orientation and the Intrinsic Motivation of Martial Art Trainees

Dong Won Yook,
Sung Hoon Kim,
and Jung Eun Lee
(Yonsei University)

This study analyzed achievement goal orientation and intrinsic motivation of martial art trainees to help provide effective instructional strategies and educational data to boost participation in martial arts. Participants totaled 90 people (62 males and 28 females), and Task and Ego Orientation in Sport Questionnaire (TEOSQ) and Intrinsic Motivation Inventory(IMI) were used for measurement. As a result, no gender difference was shown between achievement goal orientation and intrinsic motivation. Teens showed the highest numbers in ego orientation, and people older than 30 showed high numbers in effort/intrinsic motivation. In martial art type, effort and tension in taekwondo were higher than that of other martial art types. Lastly, task orientation showed positive correlation with enjoyment and effort, which implies that task-oriented martial arts trainees have high intrinsic motivation, put a lot of effort into their activity, and continue participating in their training.

Achievement motivation theory is a cognitive approach based on the assumption that goal achievement is one of the major motivators in achievement situations.[1] Thus, the main goal of a performer is to do his or her best and accomplish certain skills.

Especially in sports and exercise, much research has been performed to determine individuals' goal orientations, applying Nicholls's 1989 achievement motivation theory. According to his theory, experience of success and failure in achievement situations originates from an individual's perception of his or her ability, and the understanding of success and failure depends on how the individual interprets them. Based on what Nicholls commented, people identify their ability and success according to two types of goal orientation: *task goal orientation* and *ego goal orientation*. Task goal-oriented learners take learning itself as the ultimate goal. They tend to have a high perception of their success and ability and like to attempt moderately difficult tasks that they can achieve through some effort. On the other hand, ego goal-oriented individuals focus on comparing themselves to—and defeating—others. They have a tendency to avoid challenges and situations where they are likely to fail. They attribute mistakes and failure to their abilities. Thus they attempt either tasks that are so easy that they are guaranteed success, or unrealistic tasks where people will appreciate them just for trying.[2]

Goudas, Biddle, and Fox showed in their research that compared with ego-oriented people, task-oriented youth participated more actively and continued longer

in their activities after showing improvement.[3] In their study of achievement orientation and motivation in physical education class, Zahariadis and Biddle proved that the relationship between intrinsic motivation such as team mentality and skill development was evident in task-oriented students, and that ego-oriented students were more responsive to extrinsic motivation such as social approval and position.[4]

Biddle, Soos, and Chatzisarantis also found that a positive relationship exists between intention and task orientation.[5] In Raudsepp, Viira and Liblick's 1999 research, the results showed that task-oriented students engaged in physical activity more actively and a strong relationship existed between task orientation, physical condition, and perceived physical attractiveness.[6]

In their study of perceived ability and goal orientation, Cury, Biddle, Sarrazin and Famose observed that students with a low perception of their own competence were more ego-oriented, while task-oriented students showed more inclination to work hard.[7]

Research on understanding achievement motivation in martial arts training is inevitable, because understanding trainee emotions and improving the intrinsic motivation of martial arts trainees has become an important task of masters. Thus, the purpose of this study is to understand the intrinsic motivation of martial arts trainees in terms of achievement motivation. Understanding the motives of martial arts trainees will help masters accomplish their goals of educating trainees. Furthermore, understanding achievement goal orientation will provide the foundation data for planning effective instruction strategies for martial arts and help martial arts to prosper.

Method

Participants

We collected data from a total of 90 martial arts trainees (62 males, 28 females).

Measures

The questionnaire used in this study included three sections:

1. Demographic information
2. The Task and Ego Orientation in sport Questionnaire (TEOSQ)
3. Intrinsic Motivation Inventory (IMI)

Demographic Information

Demographic information included the participant's age, gender, and martial arts style.

Task and Ego Orientation in Sport Orientation Questionnaire (TEOSQ)

The TEOSQ measures individual differences in goal orientations in sport and consists of seven items measuring task orientation (for example, "*I feel most successful in sports when I work really hard*") and six items measuring ego orientation (for example, "*I feel most successful in sports when I'm the best*").[8] On a five-point Likert scale (1= *strongly disagree*, through 5=*strongly agree*), respondents indicate the degree to which they judge each of the 13 items related to their success in sports. Higher composite subscale scores reflect higher levels of the goal orientation dimension being measured.

Intrinsic Motivation Inventory (IMI)

The IMI is a multidimensional measurement device intended to assess participants' subjective experience related to a target activity.[9] The instrument assesses participants' interest and enjoyment, perceived competence, effort and importance, and pressure and tension while performing a given activity.

Procedure

We obtained consent from the martial arts trainees to administer the questionnaire and the project was held at the martial arts gym at Yonsei University in Seoul, Korea. The instructions were given to trainees in detail, and trainees were told that their responses were confidential. In the gym, they were told to be quiet and the project was held in a silent atmosphere. SPSS PC Windows version 15.0 and Amos version 7.0 were used for data analysis. Frequency analysis, analysis of variance (ANOVA), and correlation were implemented to model the relationship between intrinsic motivation and achievement goal orientation.

Results

Confirmatory Factor Analysis

In goodness-of-fit, there are problems of some chi-square statistics being very sensitive to sample size. Among various goodness-of-fit indexes, we used CMIN/DF (Chi-square degrees of freedom ratio), TLI (Tucker-Lewis Index), CFI (Comparative Fit

Index), and RMSEA (Root Mean Square Error of Approximation) because these indexes are less sensitive to sample size. TLI and RMSEA in particular briefly and clearly describe the model. Goodness-of-fit statistics such as CMIN/DF, TLI, CFI, and RMSEA all indicated that this model was good. CMIN/DF values below 2.0 indicate good fit. TLI and CFI values above .90 indicate good fit. An RMSEA value below 0.05 indicates a fairly good fit, below 0.08 indicates a good fit, and a value above 0.10 indicates a poor fit. Goodness-of-fit statistics in Table 1 show the construct validity of inventory in this study.

Table 1. Goodness-of-Fit Statistics of Confirmatory Factor Analysis of Task and Ego Orientation in Sport Questionnaire(TEOSQ) and the Intrinsic Motivation Inventory(IMI)

Model	Items	CMIN/DF	TLI	CFI	RMSEA
TEOSQ Two-factor	13	1.704	0.909	0.917	0.069
IMI Four-factor	16	1.926	0.918	0.902	0.071

Reliability Analysis

We validated the reliability of the questionnaire using Cronbach's α method. Achievement goal orientation consisted of two sub-divisions, and intrinsic motivation had four subfactors, shown in Table 2. Cronbach's α of TEOSQ was from 0.75 to 0.71 and Cronbach's α of IMI was from 0.81 to 0.70.

Table 2. Reliability Analysis of Task and Ego Orientation in Sport Questionnaire(TEOSQ) and the Intrinsic Motivation Inventory(IMI)

	Variable	Cronbach's α
TEOSQ	Ego orientation	0.75
	Task orientation	0.71
IMI	Interest/enjoyment	0.81
	Perceived competence	0.78
	Effort/importance	0.81
	Pressure and tension	0.70

Frequencies Analysis

The demographic information of the participants is shown in Table 3. We divided them into three groups by age. The number of participants belonging to each age group was:

- Teens: 24 (26.7%)
- Twenties: 51 (56.7%)
- Above 30: 15 (16.7%)

In gender, males outnumbered females 62 to 28 (68.9% to 31.1%). In martial arts style, participants who practice taekwondo numbered 42 (46.7%), and all others totaled 48 (53.3%).

Table 3. Frequencies Analysis of Demographic Information

	Variables	*N*	%
Age	I. 10–19	24	26.7
	II. 20–29	51	56.7
	III. 30+	15	16.7
Gender	I. Male	62	68.9
	II. Female	28	31.1
Martial arts style	I. Taekwondo	42	46.7
	II. Other martial art	48	53.3

Comparative Means Analysis of Independent Samples T-Test and One-Way ANOVA

Tables 4A and 4B show the results of our independent sample t-test and the ANOVA of achievement goal orientation (AGO) and intrinsic motivation (IM) according to demographic information (age, gender, and type of martial art). The difference between AGO and IM according to gender was not significant. The difference between ego orientation and effort according to age was $F(2, 87)=4.36$, $p<.05$; $F(2, 87)=3.33$, $p<.05$, which was statistically significant. The result of Scheffe post-test indicated a higher ego orientation for teens (2.92±.78) than the participants above 30 years old (2.29±.72). There was a significant difference in tension ($t=4.86$, $p<.001$) measured by IM according to the style of martial art.

Table 4A. Comparative Means Analysis of Independent Samples T-Test and One-Way ANOVA for TEOSQ Data

Variables	Num.	Ego Orientation		Task Orientation	
	N	M	SD	M	SD
Age					
I. 10–19	24	2.92	0.78	4.24	0.48
II. 20–29	51	2.58	0.60	4.31	0.45
III. 30+	15	2.29	0.72	4.55	0.40
F-value		4.36*		2.36	
Scheffe		I > III		-	
Gender					
I. Male	62	2.59	0.67	4.35	0.46
II. Female	28	2.70	0.76	4.28	0.45
t-value		–0.73		–0.69	
Martial art style					
I. Taekwondo	42	2.70	0.75	4.35	0.34
II. Other	48	2.55	0.64	4.31	0.54
t-value		1.02		0.40	

Note: TEOSQ = Task and Ego Orientation in Sport Questionnaire

* $p < 0.01$

Table 4B. Comparative Means Analysis of Independent Samples T-Test and One-Way ANOVA for IMI Data

Variables	Num.	Interest/ enjoyment		Effort/ importance		Perceived competence		Pressure and tension	
	N	M	SD	M	SD	M	SD	M	SD
Age									
I. 10–19	24	6.01	0.97	5.42	1.01	4.58	1.00	3.27	1.31
II. 20–29	51	6.35	0.84	5.78	0.97	4.69	1.11	3.47	1.52
III. 30+	15	6.62	0.53	6.20	0.59	4.85	1.04	2.77	1.22
F-value		2.61		3.33*		0.29		1.42	
Scheffe		-		I < III		-		-	
Gender									
I. Male	62	6.29	0.94	5.80	0.88	4.83	1.07	3.23	1.33
II. Female	28	6.33	0.60	5.64	1.10	4.38	0.98	3.46	1.64
t-value		-0.21		-0.73		1.92		-0.73	
Martial art style									
I. Taekwondo	42	6.36	0.71	5.98	0.99	4.82	1.20	4.00	1.37
II. Other	48	6.26	0.96	5.56	0.89	4.57	0.91	2.69	1.19
t-value		0.57		2.13*		1.11		4.86***	

Note: IMI = Intrinsic Motivation Inventory

* $p < 0.01$, *** $p < 0.001$

Correlations Analysis

We calculated correlations to examine the relationship among variables of goal orientation and variables of intrinsic motivation. The result is shown in Table 5.

Task orientation positively correlated with IMI enjoyment (r = 0.442), and effort (r = 0.446). IMI enjoyment also positively correlated with perceived competence (r = 0.439).

Table 5. Correlations Between Variables

Variables	1	2	3	4	5	6
1. Task Orientation	1	0.046	0.442*	0.064	0.446*	0.132
2. Ego Orientation		1	–0.106	0.072	–0.141	0.181
3. IMI interest/ enjoyment			1	0.138	0.439*	–0.060
4. IMI perceived competence				1	0.155	–0.015
5. IMI effort/ importance					1	0.164
6. IMI pressure and tension						1

Note: IMI = Intrinsic Motivation Inventory

* $p < 0.001$

Discussion

Having goals in physical education class and in sports settings provides motivation and information about one's competence to achieve the goal. Achievement goals particularly determine the way learners think and their attitude, and influence their behavior. So understanding and applying this understanding of the motives, emotion and cognition of martial arts trainees while they participate is important in the realm of sports psychology.

Thus, understanding the intrinsic motivation of martial arts trainees through the concept of achievement motivation will help masters train their students effectively and achieve their own instructional goals.

Our first finding is that there was no difference between achievement goal orientation and intrinsic motivation based on gender. This provides support for the general research result that there were no gender differences in achievement goal orientation.[10]

Second, in age, teens showed the highest ego-orientation. This implies that the younger individuals are, the more sensitive they are to approval through comparison with others. In intrinsic motivation, people in the above 30 group demonstrated a large amount of effort. It suggests that decline in physical ability as one gets older leads to more effort in intrinsic motivation.

Third, in martial arts style, effort and tension in taekwondo was higher than that of other martial arts. This is thought to be due to taekwondo requiring more physical ability than other types of martial arts.

Last, task orientation showed a positive correlation with enjoyment and effort. This is congruent with previous research that demonstrates that there are negative correlations between ego orientation and intrinsic motivation, and positive correlations between task orientation and intrinsic motivation.[11] This implies that task-oriented martial arts trainees have high intrinsic motivation, put a lot of effort in physical activity, and continue to participate in their exercise.

We recommend that martial arts instructors train their students with a task goal of self-improvement instead of a performance goal focusing on competition and comparison. When trainees base their learning objectives on mastering their task, it results in more active and effective learning and higher achievement.

References

Biddle, Stuart J. H., with Istvan Soos and Nikos Chatzisarantis. "Predicting Physical Activity Intentions Using a Goal Perspectives Approach: A Study of Hungarian Youth." Scandinavian Journal of Medicine and Science in Sports, vol. 9, no. 6, December 1999, pp. 353–357.

Cury, François, with Stuart J.H. Biddle, et al. "Achievement Goals and Perceived Ability Predict Investment in Learning a Sport Task." British Journal of Educational Psychology, vol. 67, part 3, September 1997, pp. 293–309.

Duda, Joan L. "The Relationship Between Task and Ego Orientation and the Perceived Purpose of Sport Among High School Athletes." Journal of Sport and Exercise Psychology, vol. 11, no. 3, September 1992, pp. 318–335.

Duda, Joan L., and John G. Nicholls. The Task and Ego Orientation in Sport Questionnaire: Psychometric Properties. Unpublished manuscript, 1989.

Duda, Joan L., and John G. Nicholls. "Dimensions of Achievement Motivation in Schoolwork and Sport." Journal of Educational Psychology, vol. 84, no. 3, September 1992, pp. 290–299.

Duda, Joan L., and Howard Hall. "Achievement Goal Theory in Sport: Recent Extensions and Future Directions." A chapter in Robert N. Singer, Heather A. Hausenblas, and Christopher M. Janelle (editors.), Handbook of Sport Psychology (2nd ed). Canada: JohnWiley & Sons, 2001, ISBN 0471379956, pp. 417–443.

Fox, Keith, with Marios Goudas, et al. "Children's Task and Ego Goal Profiles in Sport." British Journal of Educational Psychology, vol. 64, no. 2, 1994, pp. 253–261.

Goudas, Marios, Stuart J.H. Biddle, and Keith R. Fox. "Perceived Locus of Causality, Goal Orientations and Perceived Competence in School Physical Education Classes." British Journal of Educational Psychology, vol. 64, part 3, November 1994, pp. 453–463.

Leondari, Angeliki, and Vasilios Gialamas. "Implicit Theories, Goal Orientations, and Perceived Competence: Impact on Students' Achievement Behavior." Psychology in the Schools, vol. 39, no. 3, May 2002, pp. 279–291.

McAuley, Edward, Terry E. Duncan, and Vance V. Tammen. "Psychometric Properties of the Intrinsic Motivation Inventory in a Competitive Sport Setting: A Confirmatory Factor Analysis." Research Quarterly for Exercise and Sport, vol. 60, no. 1, March 1989, pp. 48–58.

Nicholls, John G. "Achievement Motivation: Conceptions of Ability, Subjective Experience, Task Choice, and Performance." Psychological Review, vol. 91, no. 3, July 1984, pp. 328–346.

Nicholls, John G. The Competitive Ethos and Democratic Education. Cambridge, MA: Harvard University Press, 1989, ISBN 0674154177.

Raudsepp, Lennart, with Roomet Viira, and Raino Liblick. "Perceived Physical Competence and Achievement Goal Orientation as Related with Physical Activity of Adolescents." Acta Kinesiologiae Universitatis Tartuensis, vol. 4, 1999, pp. 186–198.

Williams, Lavon. "Goal Orientation and Athletes' Preferences for Competence Information Sources." Journal of Sport and Exercise Psychology, vol. 16, no. 4, December 1994, pp. 416–430.

Zahariadis, Panagiotis N. and Stuart J.H. Biddle. "Goal Orientation and Participation Motives in Physical Education and Sport: Their Relationships in English Schoolchildren." Athletic Insight, vol. 2, no. 1, February 2000. Available at www.athleticinsight.com/Vol2Iss1/English_Children.htm

Endnotes

1 See, for example: Nicholls (1984); or Williams.

2 Nicholls (1984).

3 Goudas.

4 Zahariadis.

5 Biddle.

6 Raudsep.

7 Cury.

8 Duda (1989).

9 McAuley.

10 Leondari.

11 Duda (2001).