

# **The Effects of Achievement Goal Orientations and Goal-setting Styles on Motivational Behavior and Sport Performance**

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The Purpose of the study was to examine the effects of goal orientations and goal-setting styles on motivational behavior and bowling performance. The study also tested the causal relationship of motivational behavior to bowling performance. The subjects were 80 male college students. They were systematically assigned to four different goal-setting conditions. Each group was given different goals by researchers. On a weekly performance check the subjects individually responded to an Achievement Process Test which was composed of goal commitment and motivational behavior items. The 3-way ANOVA revealed that the task-involved subjects who were given performance goals had the highest goal commitment score. The task-involved subjects with performance goals also showed the highest effort, strategy, and motivational behavior. Structural equation modeling revealed that the models for the task-oriented subjects with goal-oriented and ego-oriented subjects in competition adequately represented the relationships among the observed variables.

## **I. Introduction**

Recently, various psychological motivational techniques have been introduced for the development of individual performance in the fields of industry, education, and sports. Especially, the goal setting process, in which individuals set goals and make efforts to achieve those goals, is an important source of self-motivation and one of the most effective techniques to increase

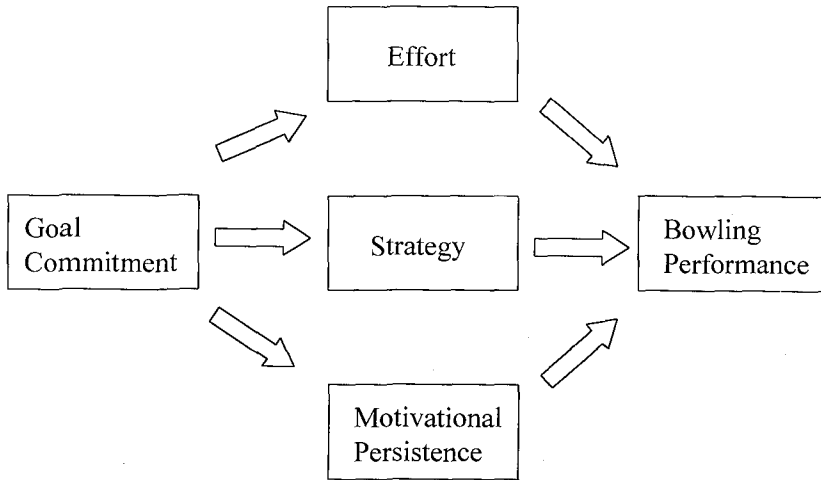
individual performance and productivity. However, there is little research to explain the association of goal setting and performance due to the lack of systematic and empirical research (Locke, 1991; Locke & Lathan, 1985). Thus, much research suggests systematic approaches that explain how goals effect performance in a sport context and with consideration for related variables.

In this view, Burton (1992) indicated that more stable individual traits such as achievement goal orientation, self-esteem, and self-efficacy should be included to analyze the relationship between goals and performance. According to Burton (1992), the goal setting style and the context in which individuals set goals are also important for understanding the relationship. Ames (1984a; 1984b), Deweck (1986), Nicholls (1984), and Burton (1989a) supported this point of view in the broad academic learning and sport context.

However, the research stated may not be effective for every individual, even though the variables treated in a great sources for understanding the individual motivational process. Especially, considering that athletes have various individual, competitive, and social resources, research on the interaction between individual trait variables and situational goal contexts are needed.

Meanwhile, the research trying to identify the direction, cause, and result in achievement-oriented contexts have tested the influence of the motivational climate on individual goal orientations. Ames and Ames (1984a) and Ames and Archer (1988) have indicated that achievement behavior was maximized when an individual disposition is compatible with a motivational goal climate. Therefore, the individuals who are task-oriented would be more motivated when learning and mastery are determined to be important. On the other hand, the ego-oriented individuals may not be motivated when they are in a mastery situation. This was partially supported by Giannini, a Weinberg, and Jackson (1988). Giannini, Weinberg, and Jackson (1988) also found that mastery-oriented subjects manifested adaptive behaviors in achievement contexts.

Research conduct on academic performance and sport contexts explained well the relationship between individual achievement goal-orientation and performance. However, the



**Figure 1.** Hypothesized model to predict bowling performance.

researcher failed to systematically explain how adaptive motivational style influences performance. Thus, the researchers thought that the comparative effectiveness should be identified under mastery and competition situations, considering individual achievement goal orientation. How motivational climate and goal setting style influence performance should also be explained. Therefore, the primary purpose of this study was to examine the comparative effectiveness of mastery and competition goal in a sport context under the condition of individual goal-orientation and goal setting style. The second purpose of the study was to test the causal relationship of goal commitment, strategy, motivational persistence, and bowling performance. In order to examine this web of relationships, structural equation modeling procedures were utilized. The hypothesized model for each group tested may be found in Figure 1.

## II. Method

### *Subjects*

The subjects of the study were 80 male college students (ego

orientation  $N = 40$  and task orientation  $N = 40$ ), whose bowling skills were considered to be at the same level and perceived ability. The subjects were assigned to four different goal-setting conditions (a task-oriented group with a performance goal, a task-oriented group with a competition goal, an ego-oriented group with a performance goal, and an ego-oriented group with a competition goal), making 20 subjects for each condition.

### *Instrument*

The variables studied in this research were assessed by the following devices.

Achievement Goal Orientation Questionnaire. TEOSQ (Task and Ego Orientation in Sport Questionnaire) made by Duda and Nicholls (1991) was used, which was translated into Korean and tested for its validity and reliability. The questionnaire contains: (a) ego-involved orientation; (b) task-involved orientation. Subjects were asked to mark on a 9-point Likert scale.

Achievement Process Test. To evaluate goal commitment, effort, strategy, and motivational persistence, the APT (Achievement Process Test) was administered to the subjects. Effort was measured by the question of how much was put forth to achieve your goal? Subjects were asked to mark on a nine-point Likert scale. For strategy level, subjects were asked how many strategies they chose among the ten factors (step, swing, throwing form, spot control etc.) which were considered to be important in their performance. Motivational persistence was measured by two questions which asked for the behavior purpose of the task and the degree of interest on nine-point Likert scale.

### *Procedures*

The initial stage of the study involved 243 subjects who participated in a bowling class. They practiced in two games in a session per week for eight weeks. The researchers gave them the individual long term goal of 140 points after eight weeks of practice. The achievement goal-orientation questionnaire was administered to the subjects in the third week. After practice for eight weeks, 80 subjects were selected who were considered to be at the same level of and perceived ability of bowling skill. The 80 subjects were systematically assigned to each condition to

exclude a performance difference among groups. The selected subjects practiced three games in a session per week for another five weeks. Each group was given a different goal by researchers. No feedback for their bowling performance was given to the subjects. After weekly performance, they individually responded on a Achievement Process Test which was composed of goal commitment and motivational behavior items (effort, strategy, and motivational persistence) for five weeks.

#### *Statistical analysis*

The 3-way ANOVA and Structural Equation Modeling were utilized to assess the mean score for dependent variables and the causal relationship among the variables. The statistical analysis in this study was carried out utilizing procedures from the SPSS and the LISREL 7 program (Joreskog & Sorbom, 1993).

### **III. Results**

#### *Test for the manipulation of independent variable*

The researchers tested the manipulation of independent variable for goal setting style through a questionnaire. The test evaluated how much each subject in ego-oriented and task-oriented groups felt competitive. The results showed that the ego-oriented subjects tended to be more competitive in their goal, compared with the task-oriented subjects ( $t_{74} = 7.69, p < .05$ ;  $t_{74} = 11.48, p < .01$ ). Thus, the manipulation of the independent variable was successful.

#### *Goal commitment level under four different conditions*

The task-oriented subjects in performance goal condition had the highest score ( $SD = 1.13$ ). Generally, the highest increase of commitment level was at the fifth week. The longer the performance period was the longer the goal commitment level became though the mean difference was small. The 3-way ANOVA revealed that the main effects of goal commitment in goal-setting and measurement timing were significant ( $p < .001$ ). However, there was no main effect for achievement goal orientation. The interaction effect of achievement-goal orientation, goal-setting style and measurement timing for goal-

commitment level was also significant ( $p < .05$ ). Thus, student Newman-Kuel and simple effect tests were conducted as post-hoc tests. The results showed that the task-oriented subjects who were given a performance goal had a higher goal commitment level, compared with the task-oriented subjects with a competition goal ( $p < .01$ ), ego-oriented subjects with a performance goal ( $p < .01$ ), and ego-oriented subjects with a competition goal ( $p < .05$ ).

#### *Motivational behavior under four different conditions*

##### *Amount of Effort under Four Different Conditions.*

Task-oriented subjects with a performance goal showed the highest effort in performance goal conditions ( $M = 7.98$ ,  $SD = 0.93$ ). Ego-oriented subjects with a competition goal were the second ( $M = 5.72$ ,  $SD = 1.11$ ) in terms of the level of effort subjects made. The 3-way ANOVA showed that there were significant main effects of effort level for achievement goal orientation ( $p < .01$ ), goal setting style ( $p < .01$ ), and measurement timing ( $p < .001$ ). Task-oriented subjects showed more effort than the ego-oriented group. The group with a performance goal made more effort than the group with a competition goal. The Newman-Kuel test showed that task-oriented subjects with a performance goal had the highest score, compared with task-oriented subjects with a competition goal ( $p < .01$ ), ego-oriented subjects with performance goal ( $p < .01$ ) and the ego-oriented group with a competition goal. The ego-oriented group with a competition goal showed more effort for improving their performance than the ego-oriented group with a performance goal ( $p < .05$ ) and more than the task-oriented group with a performance goal ( $p < .05$ ). However, the mean score difference of the ego-oriented group with a performance goal and the task-oriented group with a competition goal was not significant ( $p > .05$ ).

##### *Strategy Level under Four Different Conditions.*

The task-oriented subjects with a performance goal had the highest strategy level score ( $M = 6.02$ ,  $SD = 0.84$ ). The second highest score in strategy was the task-oriented subjects with a competition goal ( $M = 4.75$ ,  $SD = 1.74$ ). The 3-way ANOVA revealed that there was a significant mean difference in achievement goal orientation, goal setting style, and

measurement timing ( $p < .01$ ). The task-oriented subjects showed more strategies than the ego-oriented groups. The subjects with a performance goal showed more strategies than the group with a competition goal. The post-hoc test revealed that the task-oriented subjects with a performance goal showed more strategies than the task-oriented subjects with a competition goal ( $p < .001$ ), more than the ego-oriented subjects with a performance goal ( $p < .01$ ), and more than the ego-oriented subjects with a competition goal ( $p < .05$ ). The ego-oriented subjects with a competition goal used more strategies than the task-oriented subjects with a competition goal ( $p < .05$ ). However, there was no significant mean difference in performance strategy between the ego-oriented subjects with a performance goal and the task-oriented subjects with a competition goal ( $p > .05$ ).

#### Motivational Persistence Level under Four Different Conditions.

The task-oriented subjects with a performance goal had the highest score ( $M = 16.15$ ,  $SD = 1.56$ ) in motivational persistence. The next was the ego-oriented subjects with a competition goal. The 3-way ANOVA revealed that an achievement goal orientation ( $p < .01$ ), a goal-setting style ( $p < .01$ ), and measurement timing ( $p < .001$ ) had significant effects. That is to say, the task-oriented subjects with a performance goal showed more persistence. The persistence level tended to increase as time went by, though it was small. Meanwhile, the simple effect test of achievement motivation orientation, goal-setting style, and measurement timing for motivational persistence revealed that the task-oriented group with a performance goal had the highest motivational persistence, compared with other groups. The ego-oriented group with a competition goal had higher motivational persistence than the ego-oriented group with a performance goal and had higher than the task-oriented group with a competition group ( $p < .05$ ).

#### *Performance score under four different conditions*

The increase in the performance score for the task-oriented group was the highest when given a performance goal. Their performance variation between games were small, compared

with other conditions. Ego-oriented subjects improved their performance when they were given a competition goal ( $M = 8.78$ ,  $SD = 4.53$ ). Generally, as the subjects practiced more, the performance score improved. The highest improvement was achieved in the 5th week. The 3-way ANOVA revealed that there were no significant major effects with achievement goal orientation or goal setting style. However, there was a significant effect in measurement timing ( $p < .001$ ).

On the other hand, there was a significant interaction effect among goal achievement orientation, goal setting style, and measurement timing. The simple effect test showed that task-oriented subjects with a performance goal had the highest performance score. The ego-oriented group with a competition goal had a higher performance score than the ego-oriented group with a performance goal ( $p < .05$ ) and the task-oriented group with a competition goal ( $p < .05$ ). However, there was no significant mean difference between ego-oriented subjects with performance goals and task-oriented subjects with competition goals in regard to performance score.

#### *Goodness of fit for the hypothesized model*

The study evaluated causal relationships among the variables of goal commitment, effort, strategy, motivational persistence, and bowling performance, using structural equation modeling. Structural equation modeling considers the model as a system of equations and estimates all the structural coefficients directly (Joreskog & Sorbom, 1993, p. 148).

Fit indices for the originally specified model are presented in Table 1.

**Table 1.** The Model-fitting Statistics for the Subjects in Each Condition

Source	$\chi^2$	p	GFI	AGFI	RMSR
TPG	.02	.21	.99	.98	.01
TCG	6.48	.09	.90	.50	.16
EPG	6.53	.10	.87	.33	.16
ECG	1.26	.15	.95	.96	.03

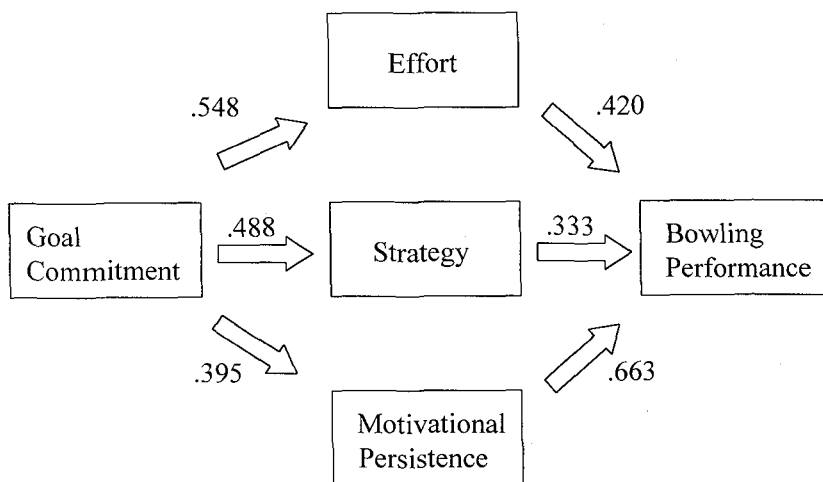
TPG - Task-involved Group with Performance Goal

TCG - Task-involved Group with Competition Goal

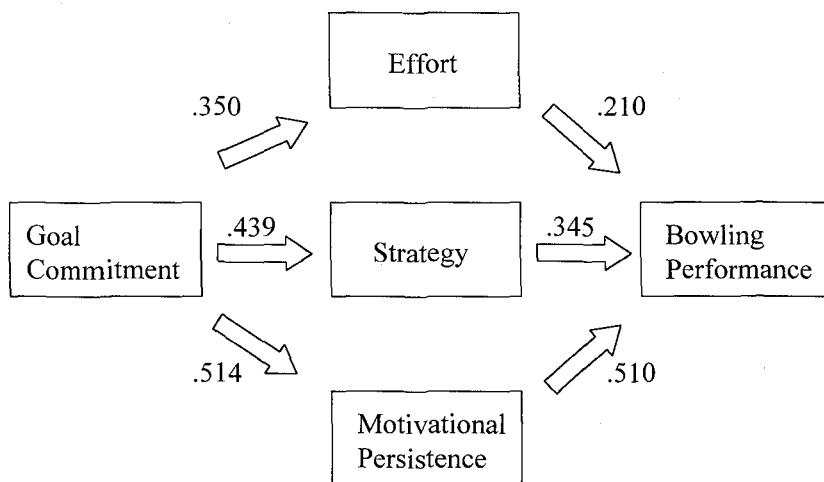
EPG - Ego-involved Group with Performance Goal

ECG - Ego-involved Group with Competition Goal





**Figure 2.** Results of specified structural equation modeling for the task-involved group with performance goal. (Path coefficients marked on path lines)



**Figure 3.** Results of specified structural equation modeling for the ego-involved group with competition goal (Path coefficients marked on path lines).

Modification indices indicated that no further changes were needed for the specified models. The models for the task-oriented group with a performance goal and the ego-oriented group with a competition goal adequately represented the relationships among the observed variables. Figure 2 and Figure 3 include the diagrams of the structural equation models.

The paths between goal commitment and effort [ $= .548, p < .05$ ], between goal commitment and strategy [ $= .488, p < .05$ ], and between goal commitment and motivational persistence [ $= .395, p < .05$ ] reached significance for the task-oriented group with a performance goal. The causal relationships of effort [ $= .420, p < .05$ ], strategy [ $= .333, p < .05$ ], and motivational persistence [ $= .663, p < .05$ ] to bowling performance were also significant.

The paths between goal commitment and effort [ $= .350, p < .05$ ], between goal commitment and strategy [ $= .439, p < .05$ ], and between goal commitment and motivational persistence [ $= .514, p < .05$ ] were significant for the ego-oriented group with a competition goal. Effort [ $= .210, p < .05$ ], strategy [ $= .345, p < .05$ ], and motivational persistence [ $= .510, p < .05$ ] had significant causal relationships to bowling performance. Other conditions (the task-oriented group with a competition goal and the ego-oriented group with a performance goal) did not adequately fit the data.

#### IV. Discussion

Within the methodological confines of the study, the results indicate that the task-oriented subjects given a performance goal tend to perceive their goal as valuable. Task-oriented subjects tend to show more goal commitment when they are given goal performance. These results are consistent with the finding of Burton (1989b; 1992) in that performance goals seem to be more flexible for task-oriented individuals because they can control their expectation. The finding is also consistent with the finding of Ames (1984a, 1984b) who found that the individual motivation level was maximized when individual achievement goal orientation coincided with his/her motivational climate (performance goal and competition goal).

Locke (1991) suggested that for an individual to invest personal resources such as effort, talent, and timing in an activity depends on the achievement goal orientation and goal setting style of that individual for that activity. Burton (1992) also supported this point of view in his competition goal-setting model.

Some evidence indicates that goals may influence achievement behavior by affecting one's employment of effort and learning strategies. This evidence was supported in the fields of industry and education. In a recent research by Burton (1993) and Smith and Lee (1992), individuals oriented to a mastery situation were more likely to try new strategies when they performed a task than the counterparts in a competitive goal condition. In this view, the result of the study implies that the task-oriented subjects are more likely to use available information for mastering their task. This effort may stimulate intrinsic motivation for the task. On the other hand, ego-oriented subjects are more likely to show comparison of their performance with that of others.

Locke (1991) and Burton (1992) indicated that goals might influence motivational persistence. This persistence might be influenced by individual achievement orientation and goal setting style. The first sport-specific study was conducted by Ewing (1981) who found that those who were highly ego-oriented ceased their participation in sport. Duda (1988) also found that students who had been involved in a sport for a longer period of time were highly task-oriented. The study supported Ewing and Duda's finding. The results of the study imply that task-oriented individuals are more likely to have higher intrinsic motivation for their tasks. In regard to this, Deci and Ryan (1985) argued that competitive goals tend to decrease intrinsic motivation because they give individuals pressure rather than valuable information.

The results indicated that the motivational model of goal setting (Locke & Latham, 1990) was supported in the task-oriented group with a performance goal and in the ego-oriented group with a competition goal. The hypothesized models for other conditions (the task-oriented group with a competition goal and an ego-oriented group with a performance goal) were not supported by the findings of the study. The study indicates that when an individual's achievement orientation is compatible with

his/her motivational climate, he/she can be involved in more goal commitment which would lead to more effort, strategy, and motivational persistence. So, it would be natural to expect a higher bowling performance score for task-oriented individuals with a performance goal. However, for the subjects under other conditions (the task-oriented subjects with a competition goal and the ego-oriented subjects with a performance goal), the motivational models were not supported by the study. This implies that there are many variables influencing performance. Especially, when achievement orientation of an individual is not compatible with his/her goal setting style, many variables other than goal commitment, effort, and strategies, and motivational persistence may be involved in performance.

Although the hypothesized models were partially supported by the study, more research is needed on similar or modified models on the motivational model suggested by Locke and Latham (1990). Another critical factor for future study is the number of subjects. In fact, this study was a preliminary study for the model suggested by Locke and Latham because of the limitation in the number of subjects. Thus, future researchers should include more subjects and more variables (trait variables and social factors) in sport specific situations.

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