Causal Relationship between Self-leadership Strategies and Learning Performance at IT Classes Mediated by Attitude of Participants : Social Science Students

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Abstract

Many organizations have had deep interests in studies concerning leadership and in academic areas, in not only management but also psychology. Until now, leadership has been accentuated by managers or team leaders especially. Recently, however, the concept of self-leadership directing one's own activities through self-control or self-management is being focused on practices and in academia.

This study is to investigate the influence between self-leadership strategies and learning performance in IT classes mediated by attitude of attendance focused on the social science students in a university. Research results can give us direction of task-taking attitudes in firms or learning attitudes in teaching organizations and implications to human resource managers who are in charge of improving learning performance or productivity.

Keywords : Behavior-Focused Strategy, Constructive Thought Strategy, Leadership, Natural-Reward Strategy, Self-leadership

1. Introduction

A number of organizations have emphasized leadership being defined as the leading power of top managers, executive officers, or team leaders. Recently, self-leadership as individual leadership influencing personal outcomes is focused on in academia and industrial fields actively [Neck et al., 1995; Prussia et al., 1998]. Until now, in not only industries but also in academia, lots of research has been conducted concerning leadership in organizations. According to styles of leaderships, organizational cultures and nature, this may be different and productivity is also depended on these [Manz and Sims, 1987]. Thus, research about leadership and self-leadership are being performed in managerial area as well as industrial psychology, etc.

Researchers assumed that self-leadership strategies might influence the academic performance of learners who are in social sciences. Generally, they feel difficulty to take part in classes of engineering-based courses. This research was based on the previous studies that, in accordance with self-leadership strategies, a person makes a different action for accomplishment of difficult tasks with appropriate self-control and self-management [Dolbier Soderstrom, and Steinhardt, 2001; Manz and Sims, 2001; Prussia et al., 1998].

In this research, the subjects were students who have participated in engineering-based courses (database, e-business system development, computer security and management sta-

tistics.

This research progressed over two semesters (two phases). In the first phase, academic performance (100-score) as dependent variables and self-leadership strategies as predictors were the factors of the regression model. In the second phase, the research model was changed into that class attitudes as mediated variables were added between self-leadership and performance. And respondents were added also.

This research was to investigate the causal relationship between self-leadership strategies and learning attitudes, learning attitudes and learning performance. The major goal of research is to find out which self-leadership strategies and attitudes affect high performance in information technologies and statistics of management. Results of the research can be help to establish self-leadership strategies for which learning attitudes may be proper to improve academic achievement. Moreover, these can give us support for developing good methodologies toward academic performance.

2. Theoretical Background

2.1 Self-leadership Strategies

Self-leadership can be defined as self-management competence driving thought and activities in the right direction. Self-leadership strategies are usually grouped into three categories of behavior-focused strategies, natural reward strategies, constructive thought strategies [Manz and Neck, 2004; Manz and Sims, 2001; Prussia et al., 1998].

Self-leadership influences self-dependence, self-pride, self-satisfaction for the given tasks or performing those, self-efficacy, creative and innovative thinking, etc [Manz and Sims, 2001; Prussia et al., 1998]. Especially, self-efficacy is defined as expectation and belief that individuals are able to make an action properly in specific context.

Hypothesis 1(H1) : Self-leadership strategies influence establishing future vision positively.
Hypothesis 2(H2) : Self-leadership strategies influence self-efforts positively.
Hypothesis 3(H3) : Self-leadership strategies influence preparation of class positively.

(1) Natural Reward Strategy

Natural reward strategies are intended to make situations that a person is rewarded and motivated by an enjoyable aspect of specific task or behavior [Manz and Neck, 2004; Manz and Sims, 2001]. In other words, natural reward strategies include two primary strategies. First, throughout the performing of tasks, the task itself will be the natural reward by the additional of pleasant and enjoyable moments. Second, a person has no interest in unpleasant tasks and expects inherent reward for the tasks. This is a mechanism for motivating a person inherently with linking self-determination and competence [Deci and Ryan, 1985].

Hypothesis 1-1(H1-1) : Natural reward strategies influence establishing future vision positively.

Hypothesis 2-1(H2-1) : Natural reward strategies influence self-efforts positively.
Hypothesis 3-1(H3-1) : Natural reward strategies influence preparation of class positively.

(2) Behavior Focused Strategy

One of the self-management strategies, one who focuses on the behavior-oriented strategy willingly carries out their duties, even if it is not a pleasant task. Namely, it is a strategy that promotes a level of self-awareness to manage own behaviors right way [Manz and Neck, 2004]. In behavior focused strategy, the elements such as self-observation, self-goal setting, self-reward, self-punishment and self-cueing.

Self-observation is a behavior that increases self-awareness level concerning time and reason absorbing specific activities [Mahoney and Arnkoff, 1978; Mahoney and Arnkoff, 1979; Manz and Neck, 2004; Manz and Sims, 1980]. Self-reward means that one can do their best for self-goal settings and goal accomplishment. Self-punishment and self-feedback are an effort to rearrange unwanted activities or failure to right direction and try to introspect [Mahoney and Arnkoff, 1978; Mahoney and Arnkoff, 1979; Manz and Neck, 2004; Manz and Sims, 1980].

Hypothesis 1-2(H1-2) : Behavior-oriented strategies influence establishing future vision positively.
Hypothesis 2-2(H2-2) : Behavior-oriented strategies influence self-efforts positively.
Hypothesis 3-2(H3-2) : Behavior-oriented stra-

tegies influence preparation of class positively.

(3) Constructive Thought Strategy

Constructive thought is a strategy driving habit of positive and right thought that affects outcomes positively [Manz and Neck, 2004; Neck and Houghton, 2006; Neck and Manz, 1992]. Constructive thought translates an irrational way or negative assumption of belief into self-talk or spiritual mind-set [Burns, 1980; Ellis, 1977; Manz and Neck, 2004; Neck and Manz, 1992]. Also, it translates destructive and non-positive self-talk into more positive internal conversation [Seligman 1991]. Consequently, this means that the personal who thinks about specific tasks positively and constructively can get higher outcomes.

Hypothesis 1-3(H1-3) : Constructive thinking strategies influence establishing future vision positively.

Hypothesis 2-3(H2-3) : Constructive thinking strategies influence self-efforts positively.

Hypothesis 3-3(H3-3) : Constructive thinking strategies influence preparation of class positively.

2.2 Self-leadership and Performance

Many previous researches suggested that self-leadership of members can influence performances of organization [Neck et al., 1995; Prussia et al., 1998]. In general, to maximize productivity and task outcome is critical interest of the majority of organizations, especially firms. Commonly, firms have a few issues such as decline of productivity, dissatisfaction of tasks, and high turnover rate, etc. Firms make an effort to solve these issues [Cummings and Malloy, 1977]. For these problems, Hackman [1986] had suggested that the self-managed work group is important concept [Hackman, 1986].

Hypothesis 4(H4) : Definitive future vision influences academic performance positively.

Hypothesis 5(H5) : Self-effort influences academic performance positively.

Hypothesis 6(H6) : Preparation of class influences academic performance positively.

Members in a group have to set their goals for accomplishing organizational goals. And they should do their best to manage themselves to achieve personal goals. Thus, recently, lots of studies concerning the self-leadership, the free will that motivate and control of themselves to attain goals affects the performance, have been progressed actively. Therefore, self-leadership means self-management capabilities that control thought and activities by himself to right direction [Manz, 1985].

Hypothesis 7(H7) : Self-leadership strategies influence academic performance positively.

Hypothesis 7-1(H7-1) : Natural reward strategies influence academic performance positively.

Hypothesis 7-2(H7-2) : Behavior-oriented strategies influence academic performance posi-

tively.

Hypothesis 7-3(H7-3) : Constructive thinking strategies influence academic performance positively.

3. Research Methods

3.1 Research Model

On the basis of hypotheses, the research model was suggested in <Figure 1>. Predictors were three self-leadership strategies (natural reward, behavior-focused and constructive thought strategy). Class participation attitudes were future vision, self-effort, and class preparation as mediation variables. Academic performance that averaged score of four lectures related to information technology (database, computer security, e-Business system development and management statistics).

3.2 Research Methodology

To test these hypotheses, research was con-

ducted through the questionnaire survey and selected with respondents who take IT system development, database, computer security and statistics for management courses.

3.3 Measures

To identify self-leadership strategies, questionnaires consist of 30 items by referring to previous literatures. Almost all of the items were based on Manz [1985]'s research suggestion and modified for improving understandability of respondents [Manz, 1985]. The response of each questionnaire as checked on the Likert five-point scale from strongly disagree (= 1) to strongly agree (= 5). Also, for measuring class attitudes, modified three items of indicators of lecture evaluation were used.

3.4 Reliability and Feasibility

In order to verify reliability and feasibility of measures, factor analysis was conducted by using full data. For extracting factors, the prin-
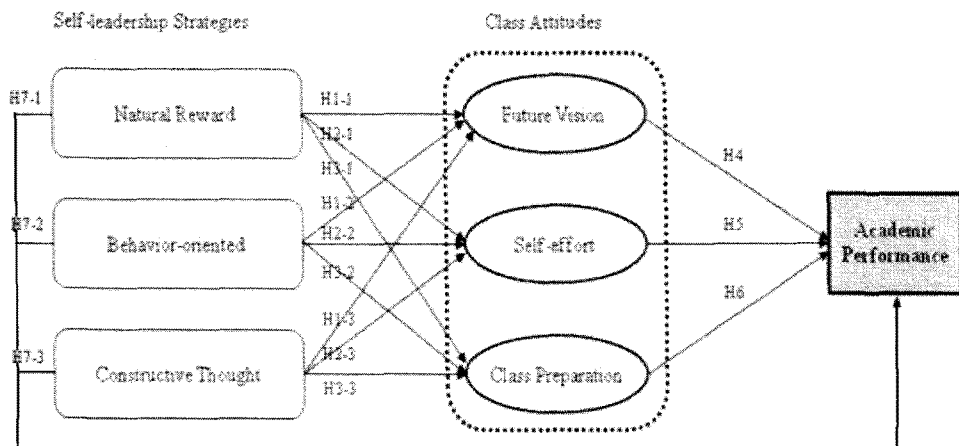
〈Figure 1〉 Research Model

〈Table 1〉 Self-leadership measures (Questionnaire)

	Contents	Strongly Disagree	Disagree	Normal	Agree	Strongly Agree
1	Before taking up a subject, I try to check and confirm whether I am ready within to do the task.					
2	I take notes in a memo so that I may not forget.					
3	I set goals and work eagerly to accomplish it.					
4	If I am satisfied with results of my tasks, I praise myself.					
5	Before taking up an important task, I make an attempt to practice in advance.					
6	In the process of working, I keep a check of my capability.					
7	While studying, I keep things around me which will help me concentrate.					
8	I am determined to accomplish the goal which I set up for myself.					
9	After successfully achieving my goal, I reward myself with things that delight me.					
10	Before starting an important task, I practice it in my mind.					
11	While studying, I check the schedule of task several times.					
12	Before taking up important task, I consult with others for advice.					
13	I like making plan for studying and follow accordingly.					
14	If I do well in my examination, I reward myself by doing things which pleases me.					
15	Before taking up my subject, I always practice in advance.					
16	I know the most interesting point in a given subject.					
17	I try to do my task in my favorite place.					
18	I try to find enjoyable topics in my study.					
19	I think advantages of my task more than disadvantages to these.					
20	I think the pleasure derived in the process of studying is more important than the result.					
21	I know my favorite topics in my study.					
22	While studying, I try to clean my studying place.					
23	I enjoy doing those works which delights me.					
24	While taking up any subject, I focus on the merits more than the demerits.					
25	I focus more on the process of study rather than the result.					
26	I can speak about my favorite topic in study confidently.					
27	If possible, I would like to study at a time when I feel comfortable.					
28	I try to find the method how to work with pleasure.					
29	I focus more on good things of studying than bad things.					
30	I consider the pleasure of working more than the compensation it would give.					
31	I have a clear vision about my future.					
32	I am quite sure that I made every effort to understand the lectures covered in this semester.					
34	I think I was quite prepared for the class and also participated in the class.					

cipal component analysis was performed. Varimax methodology was used for rotating factors. <Table 2> shows that 30 items were regrouped into three factors. The first factor group consists of items 26, 21, 28 related to natural reward (NR). The second factor group items (29, 20, 30, 19, 25) measured behavior focused (BF). The third factor group (15, 6, 10) regards constructive thought (CT). From this result, re-

searcher used 11 items for statistical analysis.

4. Research Results

4.1 Self-leadership and Attitudes for Class

In order to verify these hypotheses to investigate relationship between self-leadership strategies and class attitudes, multiple regression analysis was conducted.

〈Table 2〉 Rotated Component Matrix

Item	Factor			Cronbach Alpha	Eigen Value
	NR*	CT*	BF*		
26. I can speak about my favorite topic in study confidently.	.755				
21. I know my favorite topics in my study.	.727			.6552	5.279
28. I try to find the method how to work with pleasure.	.632				
29. I focus more on good things of studying than bad things.		.762			
20. I think the pleasure derived in the process of studying is more important than the result.		.742			
30. I consider the pleasure of working more than the compensation it would give.		.737		.7840	2.648
19. I think advantages of my task more than disadvantages to these.		.607			
25. I focus more on the process of study rather than the result.		.606			
15. Before taking up my subject, I always practice in advance.			.776		
6. In the process of working, I keep a check of my capability.			.698	.6807	2.074
10. Before starting an important task, I practice it in my mind.			.693		

Note) * CT-Constructive Thought, BF-Behavior Focused, NR-Natural Reward.

〈Table 3〉 ANOVA

	Model	SS	d.f.	MS	F
self-leadership and future vision	regression	27.998	3	9.333	9.765**
	residual	108.002	113	.956	
	sum	136.000	116		
self-leadership and self-effort	regression	14.410	3	4.803	5.318**
	residual	102.069	113	.903	
	sum	116.479	116		
self-leadership and class preparation	regression	9.714	3	3.238	3.159*
	residual	115.842	113	1.025	
	sum	125.556	116		

Note) ** p < 0.01, * p < 0.05.

(1) Self-leadership and Future Vision

In order to verify the causal relationship between self-leadership and future vision, researcher set a null hypothesis (H_0 : β = 0, H_0 : all of βs are not zeros). The explanatory power of this model was 20.6% (). Also, F-statistics, which verify the statistical significance, showed at 9.765 and significant at p = .000. The TOL (tolerance) coefficients ranged from .897 to .912 (above 0.10). The VIF (variance inflation factor) coefficients ranged from 1.085 to 1.115 (under 10.0). Thus, the regression equation, *Performance* = *-.071+.446*NR+.109*BF+.351CT*, did not show multiple co-linearity. Under the significant level of a = 0.001 and a = 0.05 respectively, both natural reward (NR) and constructive thought (CT) were positive and significant at p = .001 and p = .011 in clear future vision, respectively. This reveals that two influential variables, NR and CT, positively affect clear future vision, providing support for both

hypothesis 1-1 and 1-3. Behavior-focused (BF), however, did not support hypothesis 1-2.

(2) Self-leadership and Self-effort

For the self-effort, multiple regression analysis, showed the explanatory power of regression model as 12.4% (R^2 = *.124*). Also, F-statistics showed at 5.318 and significant at p = *.002* under significant level 1%.

Under the significant level of a = 0.01, the CT was positive and significant at p = .003 in self-effort. The NR and BF, however, were not significant. The TOL (tolerance) coefficients were above 0.10 and the VIF (variance inflation factor) coefficients under 10.0. Thus, the regression model did not show multiple co-linearity, and hypothesis H2-3 was supported.

(3) Self-leadership and Class Preparation

In order to investigate the relationship between self-leadership and class preparation, re-

⟨Table 4⟩ Significance of Predictors

	Model	Unstd. Coeff.		Std. Coeff.	t-value
		B	S	β	
self-leadership → future vision (VSN)	(Const.)	-7.098E-02	.644		-.110
	NR	.446	.126	.313	3.538***
	BF	.109	.150	.064	.732
	CT	.351	.136	.227	2.585*
self-leadership → self-effort (ED)	(Const.)	1.143	.626		1.825
	NR	-4.758E-02	.122	-.036	-.389
	BF	.274	.145	.173	1.883
	CT	.407	.132	.284	3.083**
self-leadership → class preparation (PP)	(Const.)	1.178	.667		1.766
	NR	5.439E-02	.130	.040	.417
	BF	.368	.155	.223	2.372*
	CT	.151	.141	.102	1.074

주) *** p < 0.001, ** p < 0.01, * p < 0.05.

searcher performed multiple regression analysis. The explanatory power of regression model was 7.7% (R^2 = .077). And F-statistics showed at 3.159 under significant level 5% at p = .027.

Under the significant level of a = 0.05, the CT was positive and significant at p = .019 in class preparation. The NR and BF, however, were not significant. The TOL (tolerance) coefficients were above 0.10 and the VIF (variance inflation factor) coefficients under 10.0. Thus, the regression model did not show multiple co-linearity, and hypothesis H3-2 was supported.

4.2 Class Attitude and Learning Performance

For the class attitude, multiple regression analysis, showed the explanatory power of regression model as 15.7% (R^2 = .157). Also, F-statistics showed at 7.037 and significant at p = .000 under significant level 0.1%.

Thus, the regression equation, *Performance* = $-2.58*VSN+.358*ED-.029*PP$, did not have multiple co-linearity. Under the significant level of a = .01, both future vision and self-effort were significant at p = .004 and .002 respectively. Self-effort influenced performance positively, future vision, however, did negatively. From this result, we can guess that the first, respondents answered that they had the definitive future vision, but learning performance was not good. And second, even though future vision was not

〈Table 5〉 ANOVA

	Model	SS	d.f.	MS	F
Class Attitude and Learning Performance	regression	1458.399	3	486.133	7.037***
	residual	7806.524	113	69.084	
	sum	9264.923	116		
Self-leadership and Learning Performance	regression	183.465	3	61.155	.770
	residual	9289.891	117	79.401	
	sum	9473.355	120		

Note) *** p < 0.001.

〈Table 6〉 Significance of Predictors

	Model	Unstd. Coeff.		Std. Coeff.	t-value
		B	S	Beta	
Class Attitude → Learning Performance	(Const.)	80.639	3.198		25.218
	VSN	−2.133	.735	−.258	−2.901**
	ED	3.196	.985	.358	3.243**
	PP	−.246	.967	−.029	−.255
Self-leadership → Learning Performance	(Const.)	88.388	5.784		15.281
	NR	−.879	1.083	−.078	−.812
	BF	.809	1.358	.057	.596
	CT	−1.340	1.228	−.104	−1.091

Note) ** p < 0.01.

clear, learning performance was excellent.

The TOL (tolerance) coefficients ranged from .589 to .940 (above .10). Moreover, the VIF (variance inflation factor) coefficients ranged from 1.064 to 1.698(under 10.0). Thus, H5 was supported, H4 and H6, however, were not supported.

4.3 Self-leadership and Learning Performance

To investigate the relationship between self-leadership strategies and performance, variables were assigned; self-leadership strategies to predictors and personal performance to dependent variable. Results by multiple regression analysis showed that multiple regression model was not significant statistically. Thus, self-leadership did not influence academic performance at a significant level(α = 1, 5%). Therefore, self-leadership did not support the hypothesis 7-1, 7-2, and 7-2.

4.4 Hypotheses Testing and Discussion

Through this research, first, it was found that self-leadership strategies affecting clear future vision were natural reward and constructive thought. Namely, learners felt pleasure from study and motivated respondents were apt to make their future vision clear. Also, respondents who had positive and constructive thought set their own future vision clearly.

Second, students with constructive thought usually make an effort to improve their performance. This shows that respondents with positive thinking did consistent self-efforts for high performance.

⟨Table 7⟩ Results of Hypotheses Testing

Hypothesis	Relationship	Result
H1-1	NR → VSN	Supported
H1-2	BF → VSN	Not supported
H1-3	CT → VSN	Supported
H2-1	NR → ED	Not supported
H2-2	BF → ED	Not supported
H2-3	CT → ED	Supported
H3-1	NR → PP	Not supported
H3-2	BF → PP	Supported
H3-3	CT → PP	Not supported
H4	VSN → AP	Not supported
H5	ED→ AP	Supported
H6	PP → AP	Not supported
H7(H7-1, 2, 3)	SLP → AP	Not supported

Third, results show that behavior-focused strategy influences preparation for class. Although work is hard or unpleasant, the man who focuses on the behavior-focused strategy willingly enjoys his work if necessary. Therefore he prepares for class well.

In the relationship between performance and class attitudes, self-effort influences academic performance positively. On the other hand, clarity of future vision influences performance negatively. In this result, lots of reasons can be guessed. First, although respondents answered that they set future vision clearly, their level of performance was not good. Second, their academic performance was excellent; however, their future vision was not clear.

Consequently, to maximize the academic performance, it is necessary for organizations to help learners develop proper self-leadership and emphasize good attitudes for class participation. ⟨Table 2⟩ shows results of hypotheses testing.

As the respondents orienting constructive tho-ught strategy did self-effort honestly, they could get high level of performance. However, there was no direct influence between self-leadership strategies and performance. Accordingly, it is necessary to find out mediation variables be-tween these two variables and should empha-size to learners the importance of these varia-bles for getting desirable performance.
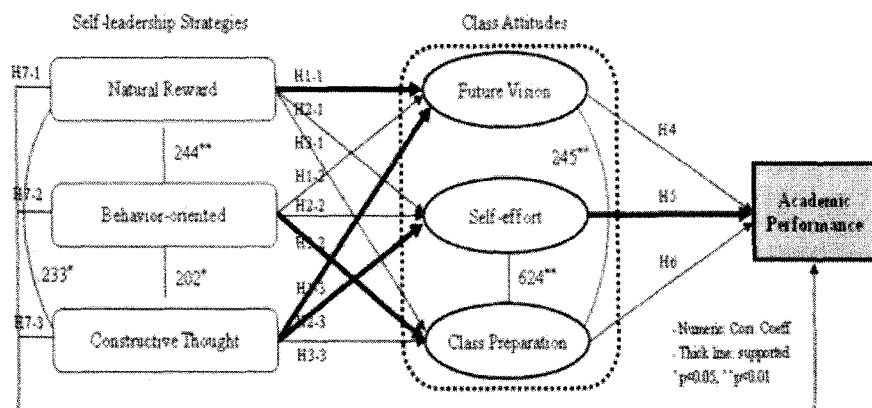
5. Conclusion and Limitation

This research was to investigate the causal relationship between self-leadership strategies and learning attitudes, learning attitudes and learning performance. The purpose of research is to find out which self-leadership strategies and attitudes affect high performance in in-formation technology and statistics of manage-ment. Results of the research can help to estab-lish self-leadership strategies for which learn-ing attitudes may improve academic achieve-ment. Moreover, these can give us implications for trying to develop better methodologies for academic performance. Almost all of the sub-jects were university students in social scien-ces taking courses such as system design and development, database implementation, or man-agement statistics in the digital business de-partment. In general, they feel difficulty during a semester in these courses.

As a result of empirical analysis, first, the re-spondents who are in natural reward or con-structive thought strategy influenced definitive future vision of class attitudes. Second, learners making an effort by themselves show a ten-dency to think constructively. Namely, even though the level of difficulty may be high, by positive self-talk, respondents usually make an effort to get high academic performance. Third, the behavior-oriented students are apt to pre-pare their class sincerely.

Concerning the causal relationships between class attitudes and academic performance, first, the future vision influences academic perform-ance negatively. This result shows the contrary that the definitive future vision influences per-formance positively. More detailed tools to evaluate the future vision such as profession or ultimate goal of life should be developed and

⟨Figure 2⟩ Result of Testing

studied at the next phase. Second, during a se-
mester, thorough self-effort affects the aca-
demic performance. Therefore the importance
of self-effort should be emphasized to learners.
On the basis of the research result, we can get
crucial clues to develop self-leadership enhan-
cement program for early or middle 20's with
low self-efficacy

This research has the following limitations.
First, respondents were sampled from a depart-
ment in a university. Therefore, the research
used limited and narrow samples for empirical
study that are in social science areas only. Se-
cond, future vision, class preparation, and self-
effort as measures to evaluate class attitude
were suggested with only one item in a ques-
tionnaire. It is necessary that more detailed
question items be developed for the next re-
search phase.

Further research to overcome research limi-
tations and improve reliability and generality of
results has to expand sample scope to not only
social science but also engineering, art and nat-
ural science area, etc. Also, there may be
meaningful research results if the next research
investigates difference among local universities.
Additionally, research will be preceded to in-
vestigate learners in universities as well as
employees in firms to find out causal relation-
ships between working attitudes and personal
performance.

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