

THE EFFECT OF ACADEMIC LEARNING ON IMPROVABILITY BELIEFS AND SELF-EFFICACY FOR MANAGEMENT

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ABSTRACT

This study examines the effects of personal support – the length of learning and academic interest – on learning about management using SEM approach. Data came from 392 Taiwanese master graduates with different years of education in management. The results shows that Chinese students do believe their managerial skills are improvable through school learning. Moreover, these beliefs will further enhance their self-efficacies in general and for applying management knowledge and skills to future works. Given the findings, we argue that personal support system plays as an exogenous mechanism, rather than a moderator, to enhance the relationship between improvability beliefs about managerial skills and self-efficacies for being a good manager.

Keywords: management education, personal learning, improvability beliefs, general and managerial self-efficacy, SEM

INTRODUCTION

Each year more students graduate with an MBA degree than almost any other graduate degree. The situation continues worldwide. Seizing the learning advantages of a latecomer, the number of MBA students in China has soared from nothing in 1991 to 150,000 in 2007 (<http://edu.people.com.cn/BIG5/5757281.html>). In Taiwan, with a population of twenty three millions, more than 150 universities provide master-level management programs, producing 20,000 or more graduates each year. Since learning is an experiential process of trial and error (Levitt and March, 1988), and surely is idiosyncratic, certain questions arise: What is the effect of Western management education on Chinese students' learning about management knowledge? To what extent, do the trainees believe their job skills and self-efficacy for being a good manager are improvable by school learning?

If managerial ability is learned rather than inherent, people must learn for how to use management knowledge effectively. Organizational behavior psychologists have evidenced that possessing the general belief that personal characteristics *can* be increased should enhance beliefs that one's *own* characteristics can be learned and developed (Maurer, et al., 2003). Although this type of belief and confidence is obviously important to organizational behavior, little research has empirically addressed the impacts of personal support factors, such as individual's interest orientation and length in the learning, on the structure. Technical employees or engineers are said to be ill-equipped for careers in management because managerial skills differ significantly from their technically oriented training and occupational objectives (Lea, 1991). Longer tenure provides greater opportunity for careerists to observe their improvement over time (Maurer et. al., 2003). A person requires at least 12-year university level educational and practice program in order to analyze and design policies in a complex dynamic environment (Forrester, 2007). The current study aims to examine the impact of one's academic major

and length of learning on learning about management.

This study starts by developing measurements. Improvability beliefs and self-efficacy expectations are two separate but related concepts. We started by developing the two scales and examining their relationships. The subsequent procedure emphasizes the effect of individual's academic major and length in learning about management on the relationship. Both moderating and mediating concepts are examined. The data came from 392 master graduates in 2009. By the time when this survey was done, these graduates had received a total of six years of academic education, with different levels of learning length in management and/or engineering, in a university of Taiwan.

RESESEARCH QEUSTIONS

Beliefs about Improvability of Career- relevant Skills

Individuals' beliefs about improvability of their knowledge and abilities is important because to the extent that people believe that it is possible to improve their intelligence, they are more likely to engage in post-assessment development activities (Maurer et. al., 2003). For instance, in training, individuals who consider ability as a fixed entity are found having lower self-efficacy than those who view ability as an acquirable skill (Martocchio, 1994); in examining applicant reactions to employee selection procedure, individuals who believe their scores could be improved on a future administration of a test react more favorably toward the selection procedure (Smither, et al., 1993). Managerial skills differ significantly from technically oriented education and training in engineering (Bailyn, 1991). If the idea of a managerial skill is believed as more or less learnable and improvable, technical careerists would have more favorable attitudes toward learning about it as well.

Improvability Beliefs and Self-efficacy

Self-efficacy is people's judgment about what they can do with whatever skills they possess to organize and execute courses of action required to attain designated types of performances (Bandura, 1986). Dealing with efficacy expectation is different from dealing with outcome expectation because outcome expectation simply quests whether or not particular behaviors will result in certain outcomes (Robertson and Sadri, 1993), whereas self-efficacy concerns the association between performance accomplishments and behavioral efforts (Bandura, 1986). For instance, efficacy expectation has been shown accounting for more performance variance than has outcome expectation (e.g., Manning and Wright, 1983).

Different from general self-efficacy, managerial self-efficacy is a type of self-efficacy expectation concerning tasks that managers are required to perform (Robertson and Sadri, 1993). According to Robertson and Sadri, managerial self-efficacy is more task specific, focusing on measures tailored to the needs of the work context, than the concept of general self-efficacy. Because learning of management knowledge is the present issue, self-efficacy construct is separated into general and managerial in the present study.

Self-efficacy for learning and development has been identified as having key relationships with attitudes, intentions, and voluntary participation in training and development activities (Maurer, 2001), and with beliefs about improvability of career- relevant skills (Maurer et. al., 2003). It also has been postulated a main source to influence the choice and performance of careerists (Betz, 1994), and a critical moderator on the effects of job training (e.g, Saks, 1994). However, Maurer et al. (2003) indicate self-efficacy for learning and development is distinguished from improvability beliefs, and should be treated separately in implicit job/task competence modeling. Robertson and Sadri (1993) also explain that individuals can believe a certain course of action will produce certain outcomes, but they may have serious doubts about whether or not they can perform the activities. Apparently, while they are correlated, improvability

belief is different from self-efficacy in definition and structure, and that belief about certain knowledge or characteristics is improvable should precede efficacy expectation. Therefore, Hypothesis 1: Trainees' beliefs about the improvability of managerial skills affect positively on their learning of the skills, that is, affect positively on their self-efficacy in general and for applying the management knowledge and skills learned.

Learning Length and Academic Major – Moderating or Mediating Effect?

According to Baron and Kenny (1986), moderator is a variable that alters (enhance, weaken, or even change to the opposite direction) the existing direction or strength of the relation between a predictor and an outcome; namely, the effect of the predictor on the outcome variable depends on the level of the moderator. On the contrary, a mediator is the mechanism through which a predictor influences an outcome variable, or more specifically, a variable that explains the relation between a predictor and an outcome (Baron and Kenny, 1986). In other words, moderators address “when” or “for whom” a predictor is more strongly related to an outcome, whereas mediators establish “how” or “why” one variable predicts or causes an outcome variable (Frazier, Tix and Baron, 2004). For instance, learning as a mechanism can lead to knowledge improvement – a mediator, but the effect levels are different due to the different personal support system – a moderator. We therefore purport to examine the role of “personal learning length in management” in the relationship structure. As Figure 1 displays, the purpose focuses on exploring whether one’s learning length in management (or engineering) is a moderator, or an exogenous variable that will enhance the relationship structure between improvability beliefs and self-efficacies.

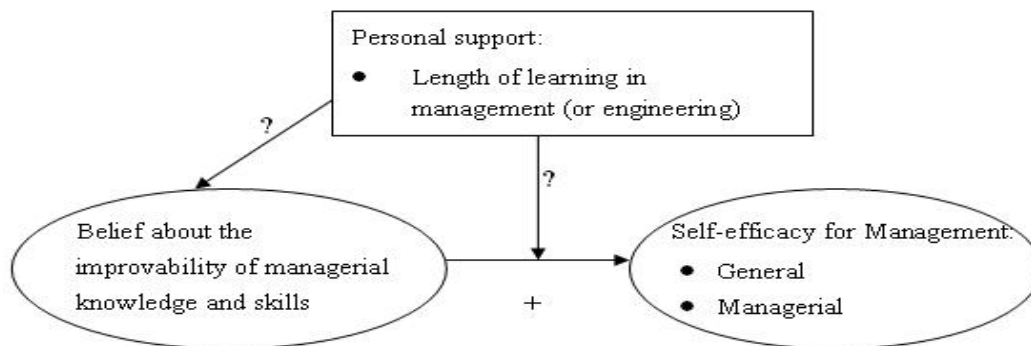


Figure 1. The research framework

DATA ANALYSIS PROCEDURE

Sample

A total of 500 questionnaires were distributed. The contents of the questionnaire include the following scales: (1) skills improvability beliefs (19 items); (2) general self-efficacy (12 items); (3) managerial self-efficacy (10 items); (4) personal demographics. In particular, in order to clarify the learning length, each respondent was requested to answer their separate undergraduate and graduate majors in the questionnaire. While varied major were filled, the samples were only taken from the 2009 master graduates of one management school and one electronic/computer engineering school in a university of Taiwan. The procedure allowed defining respondents to have a total of 6-year academic learning, with a four-year bachelor and a two-year master learning program, creating a sample of homogeneous learning

length but different in personal interest and training orientation. Because the first two years of undergraduate curriculum in Taiwan comprise primarily fundamental and common classes, the years in learning advanced management courses were counted as two years for undergraduate. In this way, respondents were finally classified into three groups of different lengths in learning about advanced management skills and knowledge; that is, one engineering group with almost no advanced management training, and two management groups with two and four years in the learning respectively.

Each questionnaire also contained a note about the voluntary nature of participation, an assurance of confidentiality, and a gift for appreciating their voluntary. We also marked a number in each questionnaire in advance for tracing students' academic records. Finally, a total of 396 completed questionnaires returned, with a return rate of close to 80%. Among them, 4 were incomplete and therefore were removed.

The sample had an average age of 24.9, with 92% between 23 and 27 years old, and 71.4% were male and 28.6% were female. Among them, 50.9% (N=199) majored in engineering with no experience in learning advanced management, 14.1% (N=56) changed their majors from other fields to management for master degrees, and 35.0% (N=137) majored in management or business all the way to graduate school. Their average year length in learning about advanced management was 1.68 years in length.

Data Analysis Methods

The analysis begins with a factor analysis, using Varimax rotation, to derive fewer factors for the three measurements, namely, improvability beliefs, general self-efficacy, and managerial self-efficacy. To obtain an overview of the variables, correlations among the research variables also were determined. Hierarchical multiple regression was then used to examine whether the length of learning in management is a moderator. The SEM (Structural Equation Modeling) followed to analyze the exogenous effect of learning length to the structural model shown in Figure 1.

RESULTS

The improvability beliefs scale provides a five-factor solution. They account for 76.10% of the common variance, and Cronbach's alphas are all greater than 0.80. On the basis of the contents of the measurements, they are named entrepreneurial, relation and collaboration, supervision and motivating, self-development, professional expertise.

The two self-efficacy measures is separately extracted three factors. On the basis of the contents of the measurements, general self-efficacy comprises the three factors: communication, attitude and motivation, and knowledge and analysis. Managerial self-efficacy comprises the three factors: work planning, administration, and compromise/ negotiation. They account for 72.88% and 76.47% of the common variance respectively, and reliabilities are all greater than 0.80, in support of the internal consistencies.

Table 1 displays the moderating of academic learning length on the relationship between improvability belief about job relevant skills and the two self-efficacies. Each self-efficacy undergoes testing by three hierarchical regression models separately: M1 and M4 test the effects of learning length; M2 and M5 test both learning length and the five improvability believes; and M3 and M6 attempt to test the moderators of learning length with the five improvability believes.

Interestingly, while learning length impacts significantly in both M1s, the impact disappears in both M5 and M6 for managerial self-efficacy. The significant effects given by the five belief variables on the four models, M2 - M3 and M5 - M6 support Hypothesis 1 that trainees' beliefs about improvability of job relevant skills affect positively on their self- efficacies for applying management knowledge and skills

learned. However, the insignificances over the five interaction terms in each of the two M3 and M6 models suggest that length of learning may not be a moderator on the improbability beliefs – self-efficacies relationship.

Table 1. Moderating of academic learning length on the relationship between improbability belief about job relevant skills and the two self- efficacies^a.

Dependent variables	General self-efficacy ^b .			Managerial self-efficacy ^b .		
	M1	M2	M3	M4	M5	M6
(1)Length of academic learning	123.18***	6.23***	6.03***	112.10***	0.95	0.90
(2)Improvability believes:						
(a)Entrepreneurial		6.47***	6.89***		3.84**	3.62*
(b)Self-development		4.87**	4.78**		3.13*	3.17*
(c)Supervision and motivating		1.17	1.15		2.70*	3.08*
(d)Relation and collaboration		4.35**	4.21**		1.36	1.25
(e)Work expertise		42.91***	42.03***		40.46***	39.68***
(3)Moderating:						
(1)x(2a)			0.46			1.57
(1)x(2b)			0.34			0.03
(1)x(2c)			0.73			1.29
(1)x(2d)			0.37			0.14
(1)x(2e)			2.42			0.98

a. Results of Wilks' Lambda F-values by Multivariate Multiple Regression
 b. General self-efficacy and managerial self-efficacy are treated as two separate integrated constructs in the tests.
 ***p<0.001, **p<0.01, *p<0.05

Figure 1 displays the results of the structural model by treating academic learning length in management (variable name: AcdLearn) as an exogenous variable on the improbability beliefs – self-efficacy relationship structure. Full names of the other abbreviated variables are shown in Table 1 and Table 2. The overall fit of the model is good (Chi-square = 107.7, df = 46, GFI=0.96, AGFI=0.93, CFI=0.97, RMR=0.043), and the path parameters are all significant at 0.05 level, except the one between provability beliefs (pvb) and managerial self-efficacy (msf), which has a significance at 0.10 level. Compared this SEM results with the results in Table 4, academic learning length in management appear to be more an exogenous mechanism to the relationship structure than a moderator.

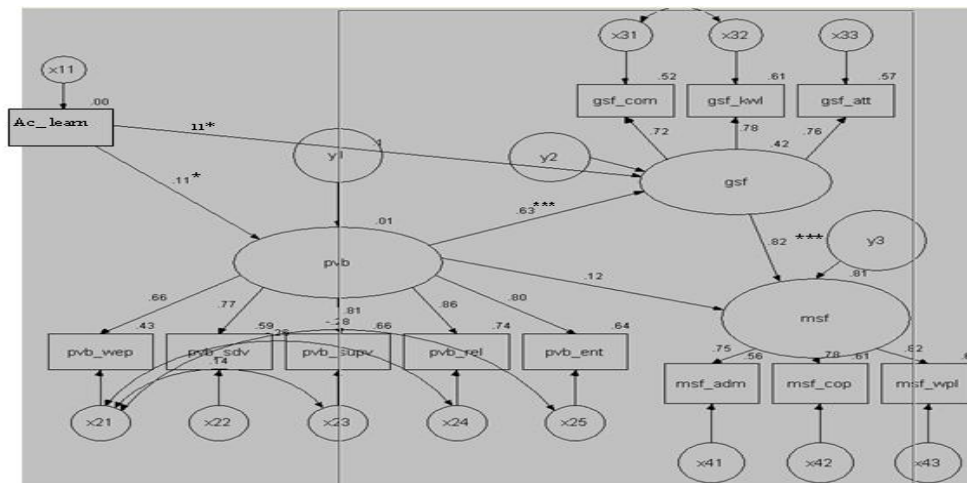


Figure 2. Final structural model (chi-square=107.7, df=46, GFI=0.96, CFI=0.97)
 ***p<0.001, *p<0.05

DISCUSSION

As noted in the introduction to this article, the appropriateness of Western management curriculum to Chinese trainees, and the effect extent in learning about modern management knowledge have been of increasing interest to cross-cultural learning researchers. The results obtained in this study show that

Chinese students do believe that one's management knowledge and job skills are improvable through school and work learning. Moreover, these beliefs will further enhance their self-efficacies in general and for applying management knowledge and skills to future works. Providing this positive improvability belief and self-efficacy connection, this study also finds that personal learning length for supporting the learning plays as an exogenous mechanism, rather than a moderator, to impact this connection.

A moderator is defined as a variable, measured by category or level, that affects the direction and/or strength of the relationship between a predictor variable (that is., improvability beliefs in this study) and a criterion variable (that is, self-efficacies in this study). Because nil moderation was found in terms of learning length, or equivalently personal interest orientation, it is inclusive about whether personal support as a contextual variable is able to alter the correlation between improvability belief and self-efficacy. However, the positive structural relationship suggests that longer learning can create higher correlation between the two constructs. Specifically, the length of learning, as the only exogenous variable to the learning model in the present study, appears to impact directly on both improvability belief and general self-efficacy. Improvability belief as a predecessor then affects general self-efficacy, which then affect managerial self-efficacy. That is, starting from length of learning, two significant paths are found: (1) learning length → improvability beliefs → general self-efficacy → managerial self-efficacy; (2) learning length → general self-efficacy → managerial self-efficacy. Therefore, the effect of learning on managerial self-efficacy, through the mediation of general self-efficacy, is indirect. Nonetheless, the significant positive connections along the paths suggest that the longer learning length do increase the belief extents of trainees about the improvability of varied managerial skills and their self-efficacies for being a good manager.

The cognitive and behavioral perspectives represent two different approaches in interpreting individual and/or organizational learning (Casey, 2005). The cognitive perspective emphasizes an individual's understanding and insights, and that learning is a process of changing and adjusting the individual's cognitions through developing beliefs. Therefore, we may conclude that the effect of academic learning is cognitive. However, the indirect effect between improvability beliefs and managerial self-efficacy currently found may also suggest that individual's learning process could involve behavioral perspective. Individuals depend on their prior experiences and knowledge to recognize and process the information they receive, and to update their memory content and structure. Different from general self-efficacy that emphasize general knowledge, attitudes and communication skills, managerial self-efficacy is more task-specific and work-tailored, concerning such measures as work planning, supervising, administration and compromising. With little prior working experience, the sampled students might therefore primarily verify their improvability beliefs through general self-efficacy expectations, but vaguely through managerial outcome expectations. This situation, in a certain sense, appears to present a behavioral reaction. Researchers have gradually accepted broad definitions of learning, and have recognized that learning is the combination of both cognitive and behavior development. Future research using practitioners as the sample is a necessity.

REFERENCES

A set of references are available upon request from Quey-Jen Yeh, email: yehqj@mail.ncku.edu.tw.