

A Motivational Model of Vocational High School Education in Taiwan: A self-Determination Theory Approach

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ABSTRACT

The purpose of this study was to propose and test a motivational model in vocational high school education. The model posited that teachers' support students' autonomy and competence positively affects students' self-perceptions of autonomy and competence. These self-perceptions, in turn, had a positive impact on students' self-determined motivation toward vocational education which led to their perception of the instrumentality of class work. This model was tested with vocational high school students (n=630). Results from multivariate analyses of variance and from structure equation modeling analyses (with AMOS) were found to support the proposed model. That is, it supported that students' perceptions of autonomy and competence support classroom were important for their motivation. Also supported was the importance of perceiving the current work as being instrumental for future orientation. Implications were discussed.

Key Words: self-determination, vocational high school education, instrumentality

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Objectives

Teaching in vocational schools is not an easy task nowadays. Many vocational school students are highly unmotivated (Creten, Lens, & Simons, 2001). This is expressed in disrupting classroom behavior, neglecting one's homework, playing truant, and underachieving (Hastings, 1994; Molnar & Lindquist, 1989; Smith, 1991). In addition to this lack of motivation, many vocational students have a short future time perspective (Lens & decruyenaere, 1991; Phalet & Lens, 1995). They do not think about their own future (e.g., connecting current task work to one's future or called instrumentality). Therefore, how to motivate vocational students enough so that profit form their professional education and not undermine their instrumentality?

Self-determination theory (SDT) have conducted much of research on classroom conditions that foster versus undermine students' positive functioning. SDT proposes that all students, regardless of their backgrounds, possess inherent growth tendencies and psychological supports and psychological needs that provided a motivational foundation for their learning behaviors (Reeve, 2006; Ryan & Deci, 2000, 2002). This theory further presumes that students are always in active exchange with their classroom environment and therefore need supportive resources from their environment to nurture and involve these inner motivational resources.

Thus, it seems reasonable to assume that classroom climate (i.e., concerning about psychological support and need) may have an important role to play in students' motivation.. In essence, the purpose of this study was to investigate the relationship and test the model among psychological support, psychological need, and motivation regulation and instrumentality in vocational high school students.

Theoretical Framework

Self-determination theory suggests that the primary issues in motivation is not how much motivation a person has, but what kind (La Guardia & Ryan, 2002). SDT also proposes that individuals can develop different types of motives toward a given behavior. Form the more self-determined to the more to the more controlled form, this continuum includes intrinsic motivation, extrinsic motivation and amotivation.

In addition, Self-determination theory (SDT; Deci & Ryan, 2000) assumed that people are active agents in the tasks of development. SDT also proposes that humans are endowed with intrinsic motivation, a natural and spontaneous tendency to be

curious and interested in investigate novelty and tackling new challenges (La Guardia & Ryan, 2002). Likewise, SDT holds that people have an assimilative tendency to internalize and integrate external criteria and social norms. And this specific forms of internalization are viewed as depend on the kind of supports provided by the environment.

Ryan (1993) differentiated between relatively incomplete forms of internalization, mostly based on external or socialization contingencies (e.g., reward and punishment), and some relatively complete forms of internalization that were related to more information and relational based forms of socialization. In the other words, SDT suggests that it is the degree to which individuals can both experience intrinsic motivation and integrate regulations of social behaviors into self that predict well-being, motivation and full functioning at every age and domain (Ryan & Deci, 2000).

Further, Deci and Ryan (2000) and Ryan (1995) indicated that the process of self-determination could be progressed optimally, requiring basic psychological needs to be supported. That is, some basic nutriment in the form of social supports for psychology growth or internalization. Accordingly, SDT suggests that the most basic psychological nutriment are the needs for autonomy, competence and relatedness.

On the other hand, SDT also indicated that motivated behaviors vary in the extent to which they are autonomous versus controlled. Behaviors regulated by autonomous motivation involved the experience of volition and choice, whereas controlled behaviors are experienced as being pressured or coerced (Black & Deci, 2000; Williams & Deci, 1996). For example, Ryan and Grolnick (1986), using both self-reports and projective stories to assess classroom climate, found that teachers high in autonomy support and warmth were those whose students reported greater intrinsic motivation and greater confidence regarding school. Likewise, Deci and his colleagues (1981) found that when teachers instruction that primarily regarded the child's perspective (autonomy supportive), students exhibited greater mastery motivation, more curiosity and more desire for challenge. In contrast, when teachers were more controlling (e.g., using punishments and rewards, social comparison, external criteria, or pressure), students displayed lower mastery motivation, lower confidence in their abilities and lower self-worth. Therefore, autonomy-supportive environments involve and nurture student's psychological needs, personal motivation and integrated values (Reeve, 2006).

The purpose of this study was to examine the relationships among psychological support, psychological need, motivation regulation and instrumentality.

Therefore, researchers posed the following research questions:

1. Are there gender differences on motivation regulation and instrumentality ?

2. Are there students' subject major differences on motivation regulation and instrumentality?
3. Are there student's education expectation differences on motivation regulation and instrumentality?
4. Does the motivational model depicted in figure 1 fit with the empirical data?

This model posits that vocational subject major teachers' psychological support positively influences students' self-perceptions of psychological need. These, in turn, are hypothesized to affect students' motivation regulation which is hypothesized to positively influence their perceptions of instrumentality.

Method

Participants

Subjects were 630 students (376 males and 254 female) from five of vocational high schools at central part of Taiwan. Subjects mean age of 17 years. A total of 16 classes took part in the study.

Questionnaire

Psychology support. This scale measured students' perceptions of their teachers' autonomy support (e.g., "my class teachers concern my needs" and "class teachers actively listen what we want to do"; 9 items, $\alpha = .90$) and competence support (e.g., "class teachers think we are capable for doing task works"; 6 items, $\alpha = .86$).

Psychology need. This measure assessed student' vocational course self-perceptions of autonomy (e.g., "I feel I have a choice to do what I want to do in the class"; 6 items, $\alpha = .77$), competence (e.g., "I believe I have capability in the courses"; 5 items, $\alpha = .82$), and relatedness (e.g., "I feel I am respect form my teacher"; 5 items, $\alpha = .91$).

Motivation regulation. Participants completed a 14-items scale measuring their motivation regulation in their vocational courses. This scale was based on Ryan and Connell (1989) and contained three subscales focusing on different facets of students' vocational classes activities. Each subscales measured different degree of self-determination motivation: external regulation (e.g., "I study hard because my teachers/parents thinking I am supposed to do"; 5 items, $\alpha = .76$), introjected

regulation (e.g., “if I don’t have a good performance in the courses, I will feel guilt”; 4 items, $\alpha = .83$), and identified regulation (e.g., “it is important for me to learn well for my vocational courses”, 5 items, $\alpha = .86$).

Instrumentality. This scale measured students’ intention to pursue their education and eventually a career within the vocational courses (e.g., “the grade I have in this course is important for me to enter better university” and “the vocational courses I studies are related to my future goals”; 5 items, $\alpha = (.88)$). All of above items were scored on a 6-point Likert scale, ranging from (1) not at all in agreement to (6) very highly in agreement.

Demographic Variables. Finally, demographic questions assessed students’ age, gender, vocational subject majors, and self education expectation.

Procedure

Students were asked to complete the questionnaire described above in class. The questionnaire was administered by their class teachers according to standard instructions. It was explained that the purpose of the questionnaire was to learn more about students’ attitude and behavior toward their vocational courses. It was clearly stated that the confidentiality of their answers would prevail at all time. Following the instructions, students’ questions were answered and they completed the questionnaire individually.

Analytic Method

Hotelling’s T^2 , t-test, ANOVA and MANOVA were used to assess both gender and student’s major difference on motivation regulation styles and instrumental behaviors, respectively. Correlations and structure equation modeling were used to assess the relations among psychological support, psychological need, motivation regulation and instrumental behaviors.

Results

Gender, Students’ Major and Self Education Expectation ion Effects on Motivation Regulations

Correlations (Table 1) indicated that there were significantly correlated among motivational regulations. Hotelling’s T^2 analysis indicated that there was no significant gender effect ,(Wilks Lambda (3, 626) = .995, $p = .370$) and students’

educational expectation effect motivation regulations [Wilks Lambda (6, 1200) = .984, $p = .138$].

For the students' major effect, MANOVA and post-hoc comparison were used. The result indicated that there was significant major effect on motivation regulation [Wilks Lambda (6, 1250) = .971, $p = .005$]. Further, there were no significant differences when compared means between groups on each subscale of motivation regulations.

Gender and Students' Major and Self Education Expectation ion Effects on Instrumentality

T-test analysis indicated that there was no significant gender effect on instrumentality, $t(628) = .76$, $p = .45$. For the students' major effect, ANOVA was used. The result showed that there was no significant sort effect on instrumentality behavior, $F(2, 627) = 2.04$, $p = .13$.

However, for the students' educational expect effect, ANOVA showed that there was significant difference on instrumentality, $F(2, 602) = 4.04$, $p < .05$, $\eta^2 = .01$. Post-hoc comparison indicated students with graduate school education expectation ($M = 4.39$) had higher score than students with high school education expectation ($M = 3.98$) did.

The Vocational High School Motivational Model: Path Analysis

Table 1 present the correlation matrix involving all variables for this study. The hypothesized model was tested using a path analysis with AMOS 7.0. The method of estimated of maximum likelihood was used for the analysis, since all the observe indicators were not violate the normal distribution. The model contained 1 exogenous variable (i.e., psychological support) and thee endogenous variables (i.e., psychological need, motivational regulation, and instrumentality). Path were specified according to the hypotheses of the theoretical model (figure 1). Results of the path analysis revealed a satisfactory fit of the model to the data. The chi-square value was not significant , $\chi^2(df = 22, N = 630) = 53.94$, $p > .05$. Since χ^2 is sensitive to sample size while the sample is large, the χ^2 test will show that the data are significantly different from those expected on a given model (Gullikson & Tukey, 1958). In place of the χ^2 test, a relative χ^2 (χ^2/df) is more often used. Ratios as low as 2 or as high as 5 have been used by different researchers to indicates a reasonable fit (Marsh & Hocevar, 1985). For this study with, with figures close to 2 was acceptable. In addition, the other fit indices were highly acceptable, TLI = .98, CFI = .99, RMSEA = .05, GFI = .98, and NFI = .98, therefore indicating good model fit.

As shown in figure 2 , the estimated path between psychological support and

perception of psychological need was significant ($\beta = .78$, $t = 13.46$). In addition, the estimated path between perceptions of psychological need and motivational regulation was significant ($\beta = .62$, $t = 11.21$). Finally, the estimated path between motivational regulation and instrumentality was also significant ($\beta = .77$, $t = 15.65$).

Conclusion and Discussion

The purpose of this study was to test a motivation model of instrumentality in vocational high school students. The model suggested that vocational high school teachers' support of their students' psychological support would influence students' own perception of psychological needs toward vocational education. In turn, these self-perceptions were hypothesized to influence students' motivational regulation, subsequently leading to recognize the important of their vocational education and future goal. The results from the structural equation modeling (SEM) analyses provided support for the proposed model.

In addition, results comparing students with different gender, subject major and self-education expectation. Students with graduate self-education expectation reported significantly higher level of instrumentality than students with high school graduate. Overall, these findings lead to number of implications.

The implications is that the results from the path analysis revealed that vocational subject matter teachers can be seen as influencing students' motivational regulation and instrumentality through their impact on students' self-perception of psychological support and psychological need. Likewise, there is important to encourage students to pursue high education goals and they would be more likely to understand the value or instrumentality of vocational subject courses.

The findings of this study could help vocational high school teachers to improve their practice, and therefore, in the long run, could help students' to reach their future goals. Essentially, this research shows that teacher support is a major of vocational high school student motivation and instrumentality.

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Table 1
Mean, Standard Deviation and Correlation of all Variables of the Instrumentality in Vocational High School Motivational Model

	M	SD	1	2	3	4	5	6	7	8	9
1.Autonomy Support	3.96	.92	1								
2.Competence Support	4.35	.83	.69***	1							
3.Autonomy Need	4.09	.75	.56***	.64***	1						
4.Competence Need	3.82	.92	.44***	.38***	.56***	1					
5.Relatedness Need	3.89	.95	.39***	.29***	.36***	.46***	1				
6.External Regulation	4.17	.85	.28***	.27***	.32***	.23***	.25***	1			
7.Introjected Regulation	3.79	1.00	.30***	.23***	.29***	.25***	.19***	.46***	1		
8.identified Regulation	4.16	.89	.32***	.33***	.42***	.36***	.22***	.51***	.45***	1	
9.Instrumentality	4.22	1.01	.37***	.35***	.37***	.30***	.29***	.56***	.36***	.55***	1

Table 2
Means and Standard Deviation of Motivation Regulation and Instrumentality by Gender

Variables	Male (n= 376)		Female (n=254)	
	M	SD	M	SD
External Regulation	4.20	.85	4.14	.85
Introjected Regulation	3.84	.99	3.72	1.00.
Identified Regulation	4.15	.88	4.16	.92
Instrumentality	4.25	.98	4.19	1.05

Table 3
Means and Standard Deviation of Motivation Regulation and Instrumentality by Subject Major

Variables	Business (n= 252)		Industry (n=242)		Home Economy (n=136)	
	M	SD	M	SD	M	SD
External Regulation	4.13	.84	4.25	.82	4.11	.91
Introjected Regulation	3.82	1.00	3.84	.95	3.65	1.05
Identified Regulation	4.27	.89	4.10	.86	4.05	.94
Instrumentality	4.29	.96	4.24	1.02	4.07	1.07

Table 4
Means and Standard Deviation of Motivation Regulation and Instrumentality by
Self-Education Expectation

Variables	Graduate (n= 97)		University (n=420)		High School (n=88)	
	M	SD	M	SD	M	SD
External Regulation	4.20	.90	4.20	.83	4.04	.91
Introjected Regulation	3.84	1.14	3.78	.95	3.75	1.01
Identified Regulation	4.34	.97	4.12	.86	4.13	.94
Instrumentality	4.39	1.08	4.24	.96	3.98	1.13

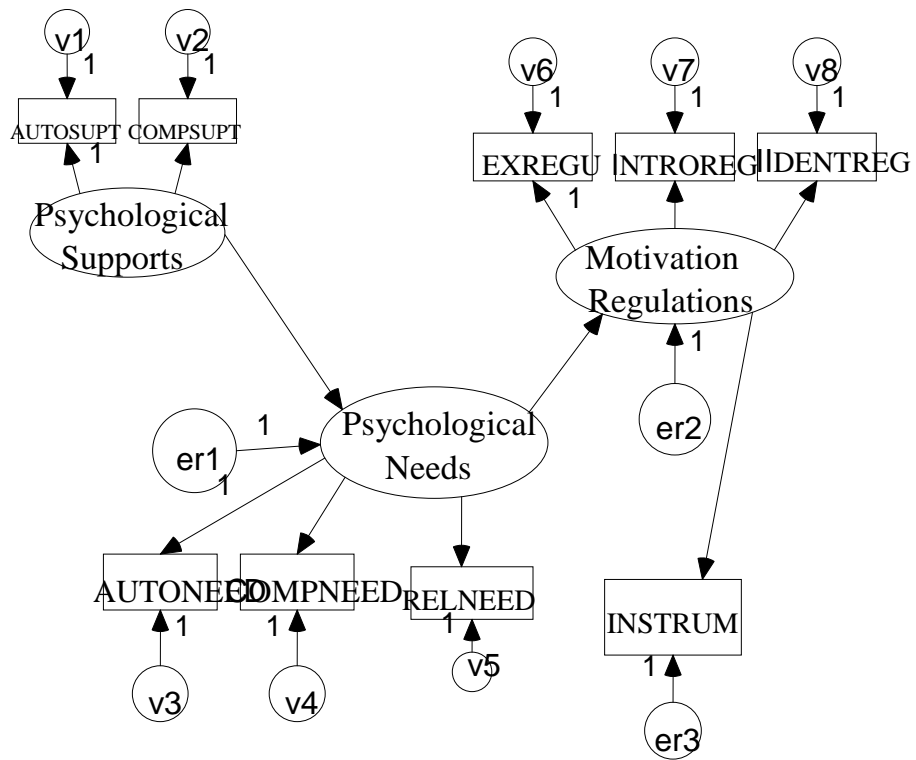


Figure 1. Hypothesized Motivational Model of Vocational High School Students

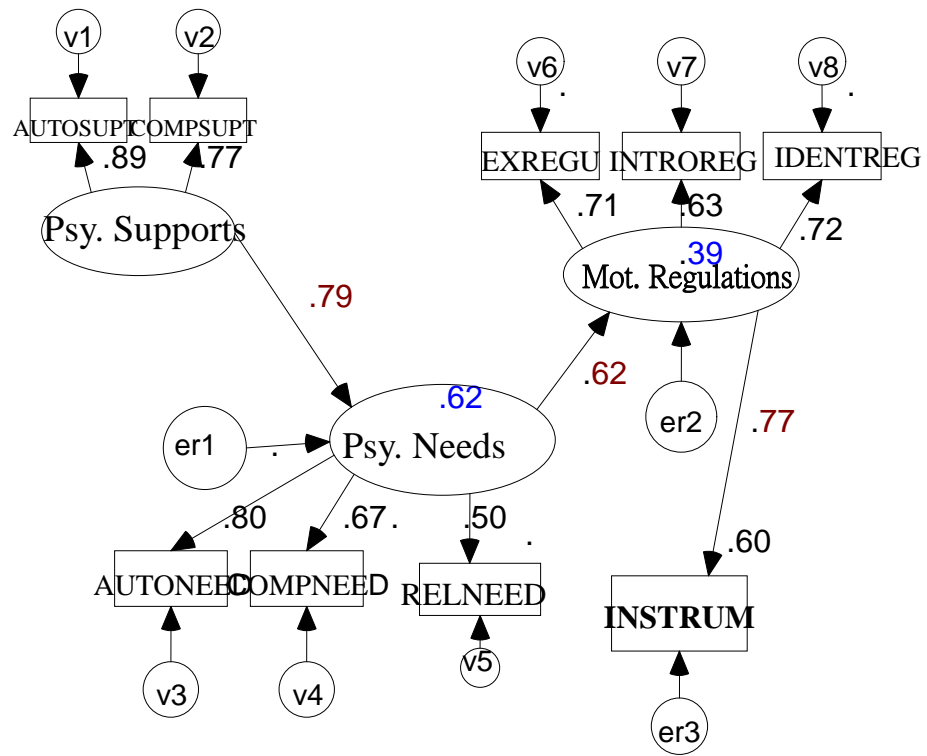


Figure 2. Results of Path Analysis for the Vocational High School Motivational Model