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Skill learning attitudes, satisfaction of curriculum, and vocational self-concept among junior high school students of technical education programs

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Abstract

In Taiwan, an increasing number of junior high school students have been studying in technical education programs rather than general programs. Thus, this study aims to investigate the skill learning attitudes, satisfaction of curriculum, and vocational self-concept among junior high school students of technical education programs as well as the relationships between these variables. In this study, data were collected from a questionnaire survey of 270 Taiwanese junior high school students who study in the technical education programs. Data were analyzed by statistical methods, including t-test, one-way ANOVA, Pearson's product-moment correlation, and multiple stepwise regression analysis. The following are the results of this study:

1. The junior high school students of technical education programs held positive skill learning attitudes while their skill learning motivation was not strong.
2. Most of the junior high school students of technical education programs were satisfied with the curriculum of technical education programs.
3. The junior high school students of technical education programs had moderately high level of vocational self-concept.
4. Skill learning attitudes and satisfaction of curriculum significantly predicted vocational self-concept.

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1. Introduction

In Taiwan, an increasing number of junior high school students have been studying in technical education programs rather than general programs. Thus, this study aims to investigate the skill learning attitudes, satisfaction of curriculum, and vocational self-concept among junior high school students of technical education programs as well as the relationships between these variables.

2. Research hypothesis

Based on the literature review, the model of research hypotheses of this study are shown in Figure 1. Overall, this study aims to test the four hypotheses: H1: The Skill learning attitudes positively influence satisfaction of curriculum; H2: Satisfaction of curriculum positively influences vocational self-concept ; H3: The skill learning attitudes positively influence vocational self-concept; H4: Satisfaction of curriculum mediates the skill learning attitudes on vocational self-concept.
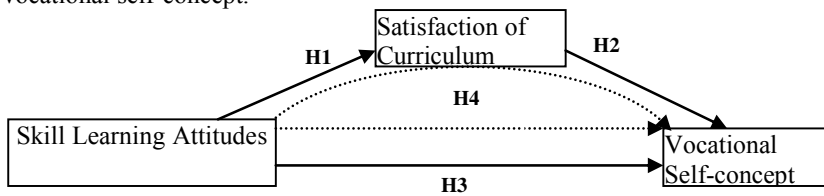

Figure 1: Research hypotheses

3. Methods

3.1 Participants

For the purposes of the study, a questionnaire survey was used to collect data, and the study population consisted of 270 Taiwanese junior high school students who study in the technical education programs. To collect useful and representative information, a stratified sampling method was used to select 13 junior high schools according to their geographical location, including eastern, northern, central, and southern regions of Taiwan. Of the 13 universities, 4 universities located in the north, 1 in the east, 3 in the center, and 5 in the south were sampled according to the proportion of schools in the four regions. The, a stratified cluster sampling method was used for distributing the questionnaire surveys. Anonymous questionnaires were distributed to 288 participants in the 13 selected schools, and 93.8% (N=270) of the questionnaires were returned and usable. Of the participants, 121 are males (45.0%), and 148 are females (55.0%). Altogether, 69 participants (25.6%) attended the engineering classes of technical education programs, 162 (60.0%) attended the business classes, 224 (83.0%) attended the domestic economy classes, 182 (67.4%) attended the agricultural classes, and 42 (15.6%) attended the marine classes.

3.2 Data collection and analysis

The scales of the study were adapted primarily from various published sources . Each item of the scales was measured on a five-point Likert scale (1=strongly disagree to 5=strongly agree). A pilot study was conducted on all the scales, and the item analysis and principal component analysis via Direct Oblimin rotation were conducted. The Cronbach's α values for reliability in all scales were higher than 0.82, and the loadings of all items were greater than .50. Thus, all of the scales had good reliability and validity. In this study, SPSS 19.0 was used as the statistic software. Descriptive statistics, one-sample t-test, dependent-sample one-way ANOVA, dependent-sample t-test, and path analysis of multiple regression analysis were employed to analyze the data.

4. Results

4.1 Skill learning attitudes

As seen in Table 1, the participants scored 3.10 on the skill learning attitudes scale, higher than the scale's median value (3), which suggests that the Taiwanese junior high school students of technical education programs perceived that they were had moderately appropriate skill learning attitudes. Of the three dimensions, the level of habits of skill learning and mastery of skill learning were higher than the level of motivation for skill learning.

Table 1. Means, standard deviations and dependent-sample one-way ANOVA of the skill learning attitudes (N=270).

Dimensions	M	SD	F	Post hoc comparison
Skill learning attitudes	3.10	0.63		3>1; 2>1
Motivation for skill learning	2.77	0.90	$F=7.60^{**}$	
Mastery of skill learning	3.48	0.71		1. Motivation for skill learning
				2. Mastery of skill learning
Habits of skill leaning	3.71	0.83		3. Habits of skill leaning

$^{**}p<0.01$

4.2 Satisfaction of curriculum

As seen in Table 2, the participants scored 4.00 on the satisfaction of curriculum scale, higher than the scale's median value (3), which suggests that the Taiwanese junior high school students of technical education programs were moderately satisfied with the technical programs. Of the three dimensions, the level of content was higher than the levels of teaching styles and equipments.

Table 2. Means, standard deviations and dependent-sample one-way ANOVA of satisfaction of curriculum (N=270).

Dimensions	M	SD	F	Post hoc comparison
Satisfaction of curriculum	4.00	0.65		2>1; 2>3
Teaching styles	3.97	0.67	$F=10.69^{**}$	
Content	4.10	0.70		1. Teaching styles
				2. Content
Equipments	3.96	0.71		3. Equipments

$^{**}p<0.01$

4.3 Vocational Self-concept

As seen in Table 3, the participants scored 3.84 on the vocational self-concept scale, higher than the scale's median value (3), which suggests that the Taiwanese junior high school students of technical education programs had moderately positive level of vocational self-concept. Of the four dimensions, the levels of vocational ability and vocational aspirations were higher than the levels of vocational values and vocational awareness.

Table 3. Means, standard deviations and dependent-sample one-way ANOVA of vocational self-concept *(N=614).*

Dimensions	M	SD	F	Post hoc comparison
Vocational self-concept	3.84	0.69		1>3,4; 2>3, 4
Vocational ability	3.84	0.79		
Vocational aspirations	3.98	0.80	$F=10.30^{***}$	1. Vocational ability
				2. Vocational aspirations
Vocational values	3.75	0.79		3. Vocational values
				4. Vocational awareness
Vocational awareness	3.77	0.78		

$^{***}p<0.001$

4.4 The Relationships between the skill learning attitudes, satisfaction of curriculum, and vocational self-concept

This study used path analysis of multiple regression analysis to examine the relationships between the skill learning attitudes, satisfaction of curriculum, and vocational self-concept. The assumptions of the regression model were checked. Because the zero-order correlations coefficient between the independent variables was 0.58, the Variance Inflation Factor (VIF) values were 1.38, and tolerance statistics were 0.65, there was no evidence to suggest that the data suffered from multicollinearity. The Durbin-Watson statistic was also between 1 and 2 (1.88), implying that errors in the regression were independent (Tabachnick & Fidell, 2007). Standardized residuals were examined to detect the presence of outliers. Three cases were determined to have standardized residuals between 2.72 and 2.83. Because none of those four cases had a Cook's distance (a measure of the overall influence of a case on the model) greater than 1 and the sample size was large, none of them had undue influence on the regression model (Field, 2005). The assumptions of normality, linearity, and homoscedasticity were checked by considering standardized residual scatter plots to examine whether the residuals were normally distributed around the predicted scores of self-perceived employability. It was discovered that the residuals had a linear relationship with the predicted scores of self-perceived employability. Overall, all assumptions were therefore met (Tabachnick & Fidell, 2007).

The regression results showed that the skill learning attitudes had a positive effect on the satisfaction of curriculum (β=0.57), and explained 37% of the variance of the satisfaction of curriculum (Table 4). Additionally, the skill learning attitudes and satisfaction of curriculum both had positive effects on vocational self-concept (β=0.30 and β=0.61, respectively), and explained 70% of the variance of vocational self-concept (Table 5).

Table 4. Multiple regression coefficients for the effect of the skill learning attitudes on satisfaction of curriculum (N=614).

Predictors	R^2	F	B	β
Skill learning attitudes	0.37	299.89[***]	0.55	0.57

[***] $p <0.001$

Table 5. Multiple regression coefficients for the effect of the skill learning attitudes and satisfaction of curriculum on vocational self-concept (N=614).

Predictors	R^2	F	B	β
Skill learning attitudes	0.70	750.01[***]	0.28	0.30
Satisfaction of curriculum			0.58	0.61

[***] $p <0.001$

Overall, all of the first three hypotheses concerning the relationships among the variables were supported at the 0.001 significance level (H1: the skill learning attitudes→ satisfaction of curriculum, β=0.57; H2: satisfaction of curriculum→ vocational self-concept, β=0.61; H3: the skill learning attitudes →vocational self-concept, β=0.30). The results showed that, the participants' skill learning attitudes positively affected their satisfaction of curriculum; the participants' satisfaction of curriculum positively affected their vocational self-concept.

In order to investigate whether the indirect effect of skill learning attitudes on vocational self-concept through satisfaction of curriculum was significant, the Sobel test was used in this study (Baron & Kenny, 1986). The test results showed that satisfaction of curriculum significantly mediated the influence of t skill learning attitudes on vocational self-concept (Z=13.28≧1.96, $p <0.001$). That is, the fourth hypothesis of the study was supported at the 0.001 significance level (H4: the skill learning attitudes→ satisfaction of curriculum →vocational self-concept). Therefore, all of the analysis results suggested that the skill learning attitudes of the Taiwanese junior high school students of technical education programs both significantly directly and indirectly affected their vocational self-concept vis-à-vis the effect on their satisfaction of curriculum. The relationships among these variables are shown in Figure 2. The estimates of the direct and indirect effects of the sill learning attitudes and satisfaction of curriculum on the vocational self-concept of the Taiwanese junior high school students of technical education programs are shown in Table 6. Of the two predictors, the skill learning attitudes had the greater impact on the vocational self-concept among the Taiwanese junior high school students of technical education programs (estimate=0.65).
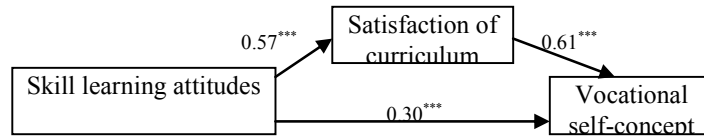
Figure 2: Results of testing the hypotheses.

Table 6. Estimates of the direct and indirect effects of the skill learning attitudes and satisfaction of curriculum on vocational self-concept.

Casual path	Direct effect	Indirect effect	Total effect
Satisfaction of curriculum →vocational self-concept	0.61	-	0.61
Skill learning attitudes →vocational self-concept	0.30	0.57*0.61=0.35	0.65

5. Conclusion

This study aims to investigate the skill learning attitudes, satisfaction of curriculum, and vocational self-concept among junior high school students of technical education programs as well as the relationships between these variables. In this study, data were collected from a questionnaire survey of 270 Taiwanese junior high school students who study in the technical education programs. Data were analyzed by statistical methods, including t-test, one-way ANOVA, Pearson's product-moment correlation, and multiple stepwise regression analysis. The following are the results of this study.1. The junior high school students of technical education programs held positive skill learning attitudes while their skill learning motivation was not strong. 2. Most of the junior high school students of technical education programs were satisfied with the curriculum of technical education programs. 3. The junior high school students of technical education programs had moderately high level of vocational self-concept. 4. Skill learning attitudes and satisfaction of curriculum significantly predicted vocational self-concept.

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