

# A study on pressure coping strategies and learning satisfaction of Technical High School students(IJIET)

Department of Industrial Education & Technology, National Changhua University of Education

Chin-Wen Liao, Yun-Yung Chen, Yu-I Wang, Hui-Fen Wu

**Abstract**—The study aimed to explore the difference in coping strategies of business and management students of skill-based high schools for learning pressure and in their learning satisfaction, with students' background as variables. A questionnaire survey was adopted in the study, and survey participants were recruited by a stratified cluster sampling approach. Population of the study was business and management seniors of skill-based high schools in central Taiwan (Taichung City, Changhua County, and Nantou County). There were 639 questionnaires being returned among the distribution of a total of 700 questionnaires to target population in nine schools. The response rate was 92.33% with 590 questionnaires fully completed, exclusive of invalid questionnaires. Analysis methods employed in the study were: descriptive statistics, independent samples t test, one-way ANOVA, the Pearson product-moment correlation, and the Scheffé post-hoc test.

**Keywords**—department of business and management, coping strategies for learning pressure, learning satisfaction.

## I. Introduction

### A. Research Background and Motive

#### 1. Research Background

According to Directions Governing for the 12-Year Basic Education Curricula released by the Ministry of Education in 2014, the development of curriculum focuses on holistic education. Departments of business and management at skill-based high schools offer not only general courses, professional courses, and practical courses but also flexible learning activities at least six classes every week to improve students' skills in career development and professional practice.

Nine-Year Compulsory Education had been implemented since 1968 until exam-free admission to senior high schools and junior colleges of five-year program was officially put into force. Change in education system may effectively reduce academic pressures, but when junior-high-school graduates attend skill-based high schools, they must take professional courses which they have never taken before, including accounting, economics, introduction to computer science, etc. Business and management students at skill-based high schools often feel frustrated because in addition to learning professional knowledge and skills, they must take proficiency certification tests or enter competitions. To take proficiency certification tests is a pressure for most students.

#### 2. Research Motive

Vocational and technical education is the foundation and mainstream of industrial and commercial development in Taiwan because it helps cultivate persons with professional skills and with hands-on experience (Tsai, 2016). Students at skill-based high schools are encouraged to enter professional competitions and project competitions. However, when the students are having not enough classes, are lacking professional knowledge, and are under the pressure of pursuing a higher education, all these situations together result in learning pressure on the students. Moreover, the students are also bothered by interpersonal relations resulted from collaboration with classmates to finish group work tasks. To discuss learning status of students when they are under learning pressure caused by taking professional courses is one of the research motives of the study.

To discuss students' coping strategies for learning pressure and their learning satisfaction

by reviewing the learning status of their taking professional courses is the other research motive of the study. Hope the study results can be for future improvement reference for education authorities.

**B. Research Objective**

The foregoing research background and research motives can be summed up in the following as research objectives of the study:

- (1) Investigate and discuss business and management students' coping strategies for learning pressure and their learning satisfaction.
- (2) Analyze the difference in business and management students' coping strategies for learning pressure, with students' individual background as variables.
- (3) Analyze the difference in business and management students' learning satisfaction, with students' individual background as variables.
- (4) Investigate and discuss correlation between business and management students' coping strategies for learning pressure and their learning satisfaction.

**II. Research Design and Implementation**

Purpose of the study was to investigate coping strategies of business and management students of skill-based high schools for learning pressure and their learning satisfaction. A questionnaire survey, which content validity and reliability had been assessed, was conducted in the study based on research objectives and the results of literature review to explore coping strategies of business and management students of skill-based high schools for learning pressure and their learning satisfaction.

**A. Conceptual Framework**

Research framework was designed in accordance with research motives, objectives, and results of literature review, as shown in Figure 1. Students' individual background variables included department, school type, school district, with or without proficiency certification, inclination to enter competitions, and career development plan. Variables of coping strategies for learning pressure included active confrontation, emotional adjustment, procrastination and evasion, and emotional

release. Variables of learning satisfaction included learning environment, teachers' profession, learning effect, and interpersonal relations.

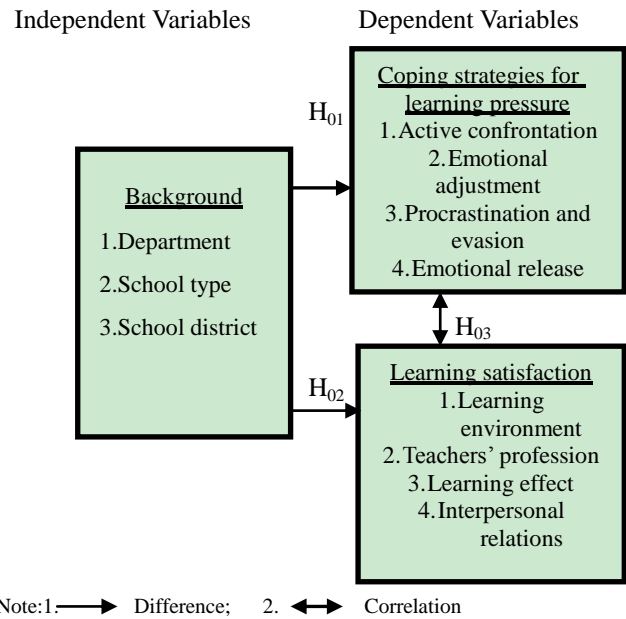


Figure 1. Research Framework

**B. Research Subject**

Research subjects were seniors of business department and management department (Department of Business Management, Department of International Trade, Department of Accounting Affairs, and Department of Data Processing) of senior high schools in central Taiwan (Taichung city, Changhua county, and Nantou country) in 2016. According to statistical data of the Department of Statistics, Ministry of Education in 2016, the total number of business and management seniors of skill-based senior high schools in central Taiwan was 5,083.

**1. Sample Size and Sampling of Preliminary Questionnaire**

The preliminary questionnaires were distributed to subjects after experts reviewed the draft's validity. Wu (2014) suggested that the sample size of a preliminary questionnaire should be five times the number of items in the preliminary questionnaire and at least 150 samples to build accurate validity. Therefore, sample size of the preliminary questionnaire was set to be 160. There were 160 preliminary questionnaires being returned. The response rate was 84.38% with 135 preliminary

questionnaires fully completed, exclusive of 25 invalid preliminary questionnaires.

## 2. Sample Size and Sampling of Formal Questionnaire

Airasian & Gay (2003) reported that the sample size of a study should be at least 10% of the population. Since the population of the study was 5,083, sample size of the formal questionnaire was set to be 700. The distribution and response rate of the formal questionnaire are shown in Table 2.

Table 2. Frequency Distribution of Response Rate

Region	School Type	School	Number of students	distributed	Returned and valid	Response rate (%)	
Taichung City	Public	Feng Yuan Commercial High School	426	94	70	74.5	
		Sha-Lu Industrial High School	41	41	39	95.1	
	Private	Chih-Yung Senior High School	184	140	106	75.7	
		Ming-Der Senior High School	141	120	110	91.7	
	Changhua County	Public	Zhenghua High School of Commerce	379	100	94	94.0
		Erbin High School of Industry and Commerce	81	40	28	70.0	
Nantou country	Private	Dade High School of Commerce and Industry	100	45	36	80.0	
	Public	Nantou Commercial High School	140	50	40	80.0	
Caotun Commercial & Industrial Vocational Senior High School		297	70	67	95.7		
	Private		0	0	0	0	
Sum			1,789	700	590	84.3	

Data source: collected in the study

### C. Research Instrument

A questionnaire survey was conducted to achieve research objectives and to verify hypotheses in the present study. A questionnaire of “Coping strategies of business and

management students of skill-based high schools for learning pressure” and a questionnaire of “Learning satisfaction of business and management students of skill-based high schools” were created as the research instruments based on the conceptual framework and the results of literature review.

#### 1. Create an Initial Questionnaire

Literature reviews were the theoretical foundation to create an initial questionnaire for the study. The initial questionnaire consisted of three parts. The first part was for respondents to provide their demographic profiles. The second part was to investigate coping strategies of business and management students of skill-based high schools for learning pressure. Contents of the second part included four dimensions: active confrontation, emotional adjustment, procrastination and evasion, and emotional release. The third part was to investigate learning satisfaction of business and management students of skill-based high schools. Contents of the third part included four dimensions: learning environment, teacher’s profession, learning effect, and interpersonal relations.

#### 2. Build Content Validity of the Questionnaire

After the initial questionnaire was created, advisor of the study reviewed and revised it. Then suggestions about relevance and representativeness of each item were offered by experts to build content validity and to work as important references for the researchers to develop a formal questionnaire. Table 3 is a list of the experts.

Table 3. A List of Experts

No.	Name	Specialty
1	Expert A	Curriculum development and evaluation, Organizational behavior
2	Expert B	Curriculum and teaching, Energy education, Organizational learning, Scientific research
3	Expert C	Engineering and technology education, Cultivation of creativity
4	Expert D	Computer networks, Software engineering
5	Expert E	Introduction to computer science
6	Expert F	Economics, Independent study, Accounting

### 3. Reliability Analysis

Reliability analysis of the study employed Cronbach's  $\alpha$  to assess internal consistency of the initial questionnaire. The higher  $\alpha$  coefficient an analysis computes, the better content consistency and reliability a questionnaire has. Wu & Tu (2016) concluded that Cronbach's  $\alpha$  for a questionnaire should be greater than .70; and the higher the  $\alpha$  coefficient, the better the consistency and reliability of the content.

### 4. Develop a Formal Questionnaire

Item analysis, factor analysis, and reliability analysis were performed for the preliminary questionnaire to screen out inappropriate items. After experts reviewed the preliminary questionnaire and made suggestions, items with ambiguous or inappropriate wording were modified so that survey participants could comprehend each question correctly and truly respond to the questionnaire. Finally, a formal questionnaire was developed.

### **D. Research Method**

The study implemented a questionnaire survey. After the formal questionnaires were returned, each questionnaire was marked manually to screen out invalid questionnaires which were responded either unreasonably or not fully, and then valid questionnaires were coded and digitized for data transference and storage in a computer. SPSS Statistics was used for compilation of statistics and analysis of data. Methods of data analysis adopted in the study were descriptive statistics, independent samples t test, one-way ANOVA, and the Pearson product-moment correlation.

## **III. Data Analysis and Discussion**

### **A. Analysis of Background Variables of Students**

Variables of students' individual background (including department, school type, school district, with or without proficiency certification, inclination to enter competitions, and career development plan) were presented by descriptive statistics in the form of frequency distribution and percentage so that the distribution of individual background

could be better interpreted. Results of the statistical analysis are shown in Table 4.

Table 4.  
Analysis Results of Students' Individual Background

Background Variable	Options	Number of students	Percentage (%)
Department	Business management	162	27.5
	Data processing	289	49.0
	International trade	109	18.5
	Accounting affairs	30	5.1
School district	Taichung city	326	55.3
	Changhua county	160	27.1
	Nantou county	104	17.6

N=590

### **B. Analysis of Coping Strategies of Business Management Students for Learning Pressure**

1. Analysis results of difference in coping strategies for learning pressure among students of different departments are shown in Table 5.

Table 5. Analysis Results of Difference in Coping Strategies for Learning Pressure among Students of Different Departments

Factor	Item		Analysis of variance						
	Dept.	Number of students	MSD	Source of variance	SS	df	MS	F	p
Active confrontation	(1)	162	3.94	between-	.37	3	.13	.30	.829
	(2)	289	3.95	groups	249.77586	.43			
	(3)	109	3.98	within-	250.16589				
	(4)	30	4.04	groups total					
Emotional adjustment	(1)	162	3.95	between-	1.03	3	.34	.82	.485
	(2)	289	4.03	groups	245.16586	.42			
	(3)	109	3.93	within-	246.18589				
	(4)	30	3.98	groups total					
Procrastination and evasion	(1)	162	2.68	between-	4.94	31.65			.082
	(2)	289	2.70	groups	429.41586	.732.25			
	(3)	109	2.93	within-	434.35589				
	(4)	30	2.66	groups total					
Emotional release	(1)	162	1.91	between-	1.76	3	.59	.96	.413
	(2)	289	2.03	groups	360.31586	.62			
	(3)	109	2.05	within-	362.08589				
	(4)	30	2.01	groups total					
Sum score	(1)	162	2.98	between-	0.89	3	.30		.155
	(2)	289	3.04	groups	98.88586	.17			
	(3)	109	3.09	within-	99.77589				
	(4)	30	3.02	groups total					

N=590

Note: 1. Department: (1) Department of Business Management; (2) Department of Data Processing; (3) Department of International Trade; (4) Department of Accounting Affairs

2. Analysis Results of Difference in Coping Strategies for Learning Pressure among Students in Different School Districts are shown in Table 7.

Table 7. Analysis Results of Difference in Coping Strategies for Learning Pressure among Students in Different School Districts

Factor	Item		Analysis of variance						Post hoc comparisons	
	Dist.	Number of students	M	SD	Source of variance	SS	df	MS		F
Active Confrontation	(1) Tai-chung city	326	3.92	.67	between-groups	2.21	2	1.06	2.51	.082
	(2) Chang-hua county	160	4.05	.64	within-groups	248.04	587	.42		
	(3) Nantou county	104	3.95	.58	total	250.16	589			
	(4) Sum score	326	3.92	.67	between-groups	2.21	2	1.06	2.51	.082
Emotional adjustment	(1) Tai-chung city	326	4.00	.68	between-groups	.24	2	.12	.29	.748
	(2) Chang-hua county	160	3.99	.65	within-groups	245.94	587	.42		
	(3) Nantou county	104	3.94	.54	total	246.18	589			
	(4) Sum score	326	4.00	.68	between-groups	.24	2	.12	.29	.748
Procrastination and evasion	(1) Tai-chung city	326	2.69	.84	between-groups	3.31	2	1.65	2.25	.106
	(2) Chang-hua county	160	2.73	.87	within-groups	431.05	587	.73		
	(3) Nantou county	104	2.89	.88	total	434.35	589			
	(4) Sum score	326	2.69	.84	between-groups	3.31	2	1.65	2.25	.106
Emotional release	(1) Tai-chung city	326	1.91	.71	between-groups	8.55	2	4.28	7.10**	.001
	(2) Chang-hua county	160	2.06	.82	within-groups	353.53	587	.60		(3) > (1)
	(3) Nantou county	104	2.22	.91	total	326.08	589			
	(4) Sum score	326	1.91	.71	between-groups	8.55	2	4.28	7.10**	.001
Sum score	(1) Tai-chung city	326	2.98	.39	between-groups	1.88	2	.94	5.62**	.004
	(2) Chang-hua county	160	3.06	.43	within-groups	97.90	587	.17		(3) > (1)
	(3) Nantou county	104	3.13	.43	total	99.77	589			
	(4) Sum score	326	2.98	.39	between-groups	1.88	2	.94	5.62**	.004

N=590 ; \*\* $p < .01$

### C. Analysis of Difference in Learning Satisfaction of Business Management Students of Skill-Based High Schools under the Influence of Background Variables

1. Analysis results of difference in learning satisfaction among students of different departments are shown in Table 8.

Table 8. Analysis Results of Difference in Learning Satisfaction among Students of Different Departments

N=590

Note: 1. Department: (1) Department of Business Management; (2) Department of Data Processing; (3) Department of International Trade; (4) Department of Accounting Affairs

2. Analysis Results of Difference in Learning Satisfaction among Students in Different School Districts are shown in Table 10.

Table 10. Analysis Results of Difference in Learning Satisfaction among Students in Different School Districts

Factor	Item		Analysis of variance							Post hoc comparison	
	Dist.	Number of students	M	SD	Source of variance	SS	df	MS	F		p
Learning environment	(3) Tai-chung city	326	3.63	.69	between-groups	1.70	2	.85	1.75	.175	
	(4) Chang-hua county	160	3.72	.73	within-groups	285.18	587	.49			
	(3) Nantou county	104	3.56	.65	total	286.88	589				
Teacher's profession	(5) Tai-chung city	326	3.96	.67	between-groups	3.17	2	1.59	3.62*	.027	
	(6) Chang-hua county	160	3.92	.68	within-groups	257.49	587	.44			(1) > (3)
	(3) Nantou county	104	3.76	.60	total	260.66	589				
Learning effect	(7) Tai-chung city	326	3.82	.72	between-groups	4.70	2	2.35	4.54*	.011	
	(8) Chang-hua county	160	3.85	.71	within-groups	303.70	587	.52			(1), (2) > (3)
	(3) Nantou	104	3.60	.73	total	308.39	589				

county									
(9) Tai-chung city	326	4.00	.66	between-groups	2.13	2	1.05	2.60	.075
(10) Chang-hua county	160	3.92	.64	within-groups	240.27	587	.41		
(3) Nantou county	104	3.85	.58	total	242.40	589			
(11) Tai-chung city	326	3.84	.59	between-groups	1.97	2	.98	2.84	.059

Factor	Item		Analysis of variance							
	Dept.	No. of students	M	SD	Source of variance	SS	df	MS	F	p
Learning environment	(1)	162	3.62	.72	between-groups	.51	3	.17	.35	.791
	(2)	289	3.67	.71	within-groups	286.37	586	.49		
	(3)	109	3.61	.63	within-groups	286.88	589			
	(4)	30	3.60	.68	total					
Teacher's profession	(1)	162	3.96	.65	between-groups	.83	3	.28	.63	.598
	(2)	289	3.88	.71	within-groups	259.83	586	.44		
	(3)	109	3.94	.63	within-groups	260.66	589			
	(4)	30	3.94	.48	total					
Learning effect	(1)	162	3.78	.76	between-groups	1.38	3	.46	.88	.452
	(2)	289	3.83	.71	within-groups	307.01	586	.52		
	(3)	109	3.73	.67	within-groups	308.39	589			
	(4)	30	3.67	.84	total					
International relations	(1)	162	3.96	.66	between-groups	.48	3	.16	.39	.761
	(2)	289	3.97	.67	within-groups	241.92	586	.41		
	(3)	109	3.90	.56	within-groups	242.40	589			
	(4)	30	4.02	.61	total					
Sun score	(1)	162	3.82	.60	between-groups	.08	3	.25	.07	.975
	(2)	289	3.82	.61	within-groups	205.40	586	.35		
	(3)	109	3.80	.53	within-groups	205.47	589			
	(4)	30	3.81	.51	total					
(12) Chang-hua county	160	3.85	.63	within-groups	203.50	587	.35			
(3) Nantou county	104	3.69	.54	total	205.47	589				

N=590 ; \* $p < .05$

#### D. Analysis of Correlation between Coping Strategies of Business and Management Students of Skill-Based High Schools for Learning Pressure and the Students' Learning Satisfaction

The Pearson product-moment correlation was used in the study to measure correlation between coping strategies of business and management students of skill-based high schools for learning pressure and the students' learning satisfaction. Table 11 is the analysis results.

Table 11. Correlation Coefficient between Coping Strategies of Business and Management Students for Learning Pressure and the Students' Learning Satisfaction

Factor		Active confrontation	Emotional adjustment	Procrastination and evasion	Emotional release	Overall coping strategies for learning pressure
Learning environment	Pearson correlation	.399***	.400***	-.185***	-.217**	.380***
	Two-tailed test of significance	.000	.000	.000	.000	.000
Teacher's profession	Pearson correlation	.460***	.334***	-.228***	-.349**	.452***
	Two-tailed test of significance	.000	.000	.000	.000	.000
Learning effect	Pearson correlation	.473***	.372***	-.286***	-.247**	.449***
	Two-tailed test of significance	.000	.000	.000	.000	.000
Interpersonal relations	Pearson correlation	.496***	.410***	-.228***	-.334**	.475***
	Two-tailed test of significance	.000	.000	.000	.000	.000
Overall learning satisfaction	Pearson correlation	.517***	.434***	-.255***	-.330**	.497***
	Two-tailed test of significance	.000	.000	.000	.000	.000

N=590 ; \*\*\*  $p < .001$

#### IV. Conclusion

Based on research objectives and analysis results, the study has concluded that:

A. The coping strategy that business and management students of skill-based high schools often use to deal with learning pressure is "active confrontation." The interpersonal relations influence students' learning satisfaction the most.

B. "Emotional release" is the coping strategy that business and management students of skill-based high schools in Nantou county often use to deal with learning pressure. The result disclosed that when facing learning pressure, students in Nantou county are more likely to use negative coping strategy than those in Taichung city.

C. There is a positive correlation between coping strategies of business and management students for learning pressure and the students' learning satisfaction. When students are under too much academic pressure, they must have coping strategies to deal with the stress whether mentally or physically. Students who can use positive coping strategies tend to utilize them more effectively when facing learning pressure and tend to be more satisfied with their learning.

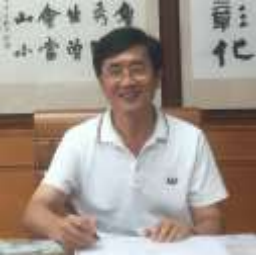
#### REFERENCES

- [1] Ministry of Education. (2014). *Directions Governing for the 12-Year Basic Education Curricula*. Retrieved from [http://www.naer.edu.tw/files/15-1000-7944\\_c639-1.php?Lang=zh-tw](http://www.naer.edu.tw/files/15-1000-7944_c639-1.php?Lang=zh-tw) °
- [2] Tsai, S. Y. (2016, Nov. 25). A Maker Drops out from a Normal High School to Attend a Technical High School; He Wins National Golden Hand Award. *Liberty Times Net*. Retrieved from <http://news.ltn.com.tw/news/life/breakingnews/1898059> °
- [3] Wu, M. L. (2014). *SPSS & the Application and Analysis of Statistics*. Taipei City, Taiwan: Wu-Nan Book Inc.
- [4] Wu, M. L. & Tu, C.T. (2016). *SPSS & the Application and Analysis of Statistics (Revised Edition)*. Taipei City, Taiwan: Wu-Nan Book Inc.



**Chin-Wen Liao** received both M.S. and Ph.D. in Industrial Education from National Taiwan Normal University, Taiwan, R.O.C. in 1994 and 2002, respectively. Since August 2011, he has been a professor in Department of Industrial Education and Technology at National Changhua

University of Education (NCUE) in Taiwan, R.O.C. He teaches courses in technology and vocational education, energy education, course and teaching, organizational learning. His research interests include technology and vocational education, teacher education, energy education of technology, and learning organization.



**Yun-Yung Chen** got a master's degree from the private Shuter University of Science and Technology in 2005 and currently is a doctoral student in the Department of Industrial Education at National Changhua University in Taiwan. Since 1995, he has been responsible

for the preservation of cultural assets and the work of the secretary in the government department of Changhua County, Taiwan. He also has been a part-time teacher at Changhua Jianguo University of Science and Technology and has taught courses in cultural assets and human geography.



**Yu-Yi Wang** is currently a doctoral student in the Department of Industrial Education at National Changhua University in Taiwan and an administrative officer of the College of General Education at National Chin-Yi University of Technology.

She received master degree in the Institute of Innovation Technology and Information Management at National Chin-Yi University of Technology. Her research interests include service management, performance evaluation, and quality management. Her research has been published in the journal of Key Engineering Materials and some international conferences.



**Hui-Fen Wu** National Changhua University of Education/Department of Industrial Education, Taiwan, R.O.C



