
The Effects of an Emotional Management Programme on the Work Emotional Stability and Interpersonal Relationships of Vocational School Students

Ming-Kung Yang

Gwo-Shing Wang

National Changhua University of Education, 1 Jin De Road, Paisha Village, Changhua 500, Taiwan

This paper looks at how emotional management programmes influence vocational students' emotional stability and their interpersonal relationships with others. A theory basis was derived from a literature review. From this, along with the utilisation of experiment method in instruction and questionnaire, an understanding of students' skill learning achievement with others was found. It was discovered that those students who underwent the emotional management programmes had greater emotional stability than those who did not and that the low profession learning students who underwent the programme receive more joy in learning than the high profession learning basis students. However, the emotional management programme did not affect the students' interpersonal relationship with others as a whole, although the high profession learning basis students who underwent this programme had a higher level of interaction with others than those who did not. These results indicate that the emotional management programme is beneficial to senior vocational high school students at stabilising their emotions and helping to build up their interpersonal and learning confidence in terms of work learning.

INTRODUCTION

The traditional concept of education and teaching, intelligence quotient and grades are the main tools to evaluate the achievements of students. Facing the diversity of society and the development of information technology, the traditional textbook and subjects are not compatible with the explosion of knowledge and cannot satisfy the students' requests for knowledge.

While the development of information technology generated the massive knowledge outburst, it also expanded the development of communication technology; the Internet has pulled the human relationships closer and increased the interaction between people. In order to work as a team, it is important to have the ability to get along with others.

For some time now, the emphasis has been on passing on knowledge. However, there needs to be a re-evaluation of this method of teaching. In order to cultivate the right attitudes, habits and concepts, equal emphases should be placed on cognition, skills and emotions. Emotion or feeling should be blended into

the teaching of cognition and skills so that the right attitudes, habits and concepts can be educed in the students.

Emotion

Emotion is the change in psychology and behaviour that results from the interaction of an individual's internal mental operation process and the outside environment. It is a common human experience and an innate ability.

Emotion influences aspects of an individual's psychology, physiology and behaviour. Emotion affects cognition of the outside world and is related to the health of mind and body, the learning efficiency, behaviours displayed, interpersonal relationships, personality development and adaptation to the living environment. A positive emotion helps a person to live and to learn better. A negative emotion will influence one's life, study and health [1].

The period of senior high school is a critical time for students stepping into adulthood. Vocational high

school education is the cradle for students to learn specific skills. During this period, the students' cognition or intellect gradually reach their maturity. They are expanding their social contacts and interacting with others more frequently. Therefore, their emotions are at a stage of multiplications of worries; negative emotions appear with greater intensity and frequency than positive emotions. Negative emotions include anger, fear, jealousy and anxiety [2].

This paper examines emotional management for vocational senior high school students. It is explored if experimental teaching in an emotional management programme could improve the students' working emotional stability and enhance their interpersonal relationships and skill learning achievement. It is envisaged that this study will provide a reference tool for teaching and counselling.

PURPOSE OF THE STUDY

The purpose of this study is as follows:

- Explore if the emotional management programme can influence the emotional stability, interpersonal relationships and skill learning achievements of the students in vocational senior high school.
- Explore how the emotional management programme influences students in different professional learning bases in terms of emotional stability and interpersonal relationships.
- Explore how the emotional management programme affects different neurotic tendencies in students.
- Study how the emotional management programme affects different inferiority tendencies in students.
- Wish to offer above study results as reference if there is the need for emotional management programme and to offer it as a reference to teachers in teaching and counselling.

According to the purpose of the study, the hypotheses of this research as follows:

- The emotional management programme has no influence on the emotional stability, interpersonal relationships and professional learning achievements.
- The emotional management programme has no influence on different students' professional learning bases in terms of their emotional stability, interpersonal relationships and professional learning achievements.
- The emotional management programme has no influence on different students' neurotic tendencies

in terms of their emotional stability, interpersonal relationships, skill learning behaviour and professional learning achievements.

- The emotional management programme has no influence on different students' inferiority tendencies in terms of emotional stability, interpersonal relationships and professional learning achievements.
- The emotional management programme has no learning progress and emotional reaction is no exception.

LITERATURE REVIEW

To sum up, emotion is a complex concept. It is composed of personal and environmental elements that affect an individual on many levels. Although emotion is very important, it can have negative influences. As such, it is crucial to determine how to transfer negative emotion into positive emotion. Several theories have been advanced to explain relative emotional concepts.

James and Lange think that emotion is a conscious experience sensed by an individual. It has several stages, including an individual's awareness for stimuli and cognition of the autonomous nervous system's biological changes. It is a sensible conscious experience, including introspective, subjective levels and the sensual situation in an individual's consciousness [3]. Hence, according to James and Lange's' emotional theory, biological theory can explain emotional experiences; the emotional management courses have to teach students to experience biological changes., to establish correct concepts and to remember the link between emotional and biological changes during growth by introspection to correct the existent wrong reactive ways.

There are two viewpoints in Arnold's emotional theory [4]. Firstly, emotion comes from the evaluation processes of the cerebral cortex. Emotional sensibility comes from an individual's awareness of the significance of the environmental stimuli. The environmental stimuli's significance comes from an individual's evaluation. Secondly, emotion results from the interaction of the autonomous nervous system and the cerebral cortex. Arnold's evaluation theory includes biological, cognition, behaviour and environmental factors. When designing emotional management courses, it should be noted that whether the environmental stimuli's significance and effect on an individual meets his/her cognition and needs.

Lazarus thought that emotion includes three parts: environmental messages, quick or consistent evaluation and individual biological and psychological reactions [5]. Emotion includes the mixed reactions of

environmental, biological, psychological and behaviour vectors. In other words, when an individual faces environmental stimuli, he/she evaluates consistently and looks for the significant stimuli. Each emotion includes evaluation, activity orientation and biological changes that constitute an organised emotional reaction. Therefore, past emotional experiences should be studied during the designation of emotional management courses. The relationship between the present incident and environment, personal needs and motivation should be known in order to learn to deal with emotion correctly.

EMOTIONAL MANAGEMENT CURRICULA

The subjects of an emotional management curricula can be divided into self-affirmation, pressure management and rational-emotive training.

Self-affirmation Training

The application of self-affirmation training includes children, adults, women, students of all classes and teachers. Most studies prove that such training can increase self-affirmation, self-esteem and internal control beliefs. Also, many scholars have shown that self-affirmation in training decreases irrational beliefs, social anxiety, depression and attacking behaviours [6]. Leone and Gumer applied self-affirmation training on shy children to help them communicate efficiently and to increase their self-esteem and affirmation. They found that it could increase greatly children's self-esteem, confidence and self-affirmation [7]. Yang applied it on junior high school girls and found that it can increase self-esteem and decrease social anxiety [8].

Stress Inoculation Training

Stress Inoculation Training was developed by Meichenbaum in 1975 to cure anxiety. Meichenbaum thinks that changing an individual's subjective sense of control, self-causation and cognition evaluation towards emotions can help people become immune against pressure [9]. When an individual learns to control, change internal language and how to react, he/she will not feel disabled even when facing unexpected incidents or being in uncontrollable situations. The negative effects will be reduced as well.

Rational Emotive Training

Rational Emotive Therapy was founded by Alport Ellis in 1955. It emphasises reconstruction of cognition, both

at emotional and behavioural levels, and applications of cognition, behavioural and emotional approaches to help an individual overcome a self-degrading value system and guide an individual to develop his/her own life philosophy. This will also help increase the person's ability to efficiently adapt to life [10].

Working Emotional Management Training

From what have been mentioned above, it can be recognised that emotion is relative to learning and personalities. Therefore, the effects of working emotional management training in the skill learning are worth studying.

As far as the learning content is concerned, the vocational education focuses on skill learning. However, the technological development, apparatus and facilities are subtler than before and the content of skill learning is changed at the same time. There will be new vocational curriculum and the selective courses of each school will increase a lot.

This study can be a reference tool for schools to design their emotional management training courses. As far as the School of Management is concerned, the vocational students are rude and quick-tempered after their period of adolescence at junior high school. Emotional management training can help these students to know, control and stabilise their emotions, and train them to think calmly to solve their problems. This will also contribute to the School of Management.

RESEARCH DESIGN

Subjects

The subjects of the study were third-year students in the Automobile Department of Xie-Zhi Vocational Senior High School of Industry and Housework and were divided into an experimental group and a control group. Each group had 50 students. One hundred students fully completed the research during the semester's experiment process.

Experiment Design

The teaching of the experimental course in this study applied the experimental research design. The experimental group underwent an emotional management programme, which contained ten units, one hour a week, 15 hours in total. The last practicing class is the practicing time. The control group followed the professional course of the Automobile Department in the school. The same teacher taught the two classes so as to avoid any inaccuracy resulting from different

teachers. The experimental module is illustrated in Figure 1.

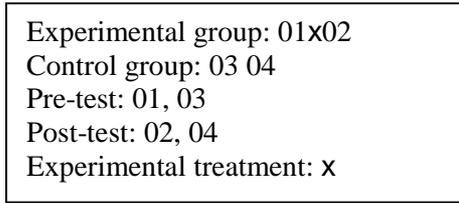


Figure 1: Experimental module.

Research Tools

The research tools are the *Emotional Management Programme*, *Skill Learning Students’ Interpersonal Relationship Questionnaire*, and *Skill Learning Students’ Emotional Stability Questionnaire*, which had been edited by the researcher; and the skill learning final test of related knowledge and skill practical operation. The previous test subjects were 125 third-year students in the Automobile Department (two classes) and Machinery Department (one class) of National Jia-Yi Industrial Senior High School. These had been analysed using item, factor and reliability to construct a formal questionnaire of reliability and validity.

The Related Variables

Background variables included the professional learning basis (the professional cognition and skill practice grades of the semester before the experiment), neurotic tendency and the inferiority tendency. The division of high and low grades is in accordance with 25% overall.

Experimental treatment covered ten units, such as knowing one’s emotions, perceiving one’s emotions, understanding where the emotions come from, the transition of emotions, effective skills of emotional management, emotions and interpersonal communication, how to relax the body and mind, interpersonal conflict and solutions, adjusting to pressure and self-approval training in an emotional management course for work.

Result variables encompassed scores of professional learning achievement (professional cognition, skill practice), interpersonal relationship (confidence, interaction, sociability) and emotional stability (learning-esteem, learning enjoyment, learning autonomy).

Firstly, the study explored students’ changes in interpersonal relationships, emotional stability and the grades of professional learning achievement after taking the emotional management programme for work. Secondly, taking the professional learning basis, neurotic tendency and the inferiority tendency as an

argument, the study explores whether students’ interpersonal relationships, emotional stability, skill learning behaviour and the grades of professional learning achievement differ from those who did not take the emotional management programme for work.

In order to understand if there were differences between the experimental and control groups on the professional learning basis of professional cognition and skill practice, the researchers utilised single-factor variation analysis for the two groups’ pre-test scores of the professional cognition and skill practice. The statistical outcome revealed that there was no obvious difference between them.

As shown in Table 1, the control group students in the sense of inferiority reached obvious differences in the field of professional cognition ($p < 0.05$). Students of low tendency of the sense of inferiority had higher grades than those of high tendency of the sense of inferiority.

Experiment Procedures

To understand the influences that the emotional management course has on the professional learning achievement, the study was completed through experimental study steps. The procedures are listed as follows:

- Explore the related literature concerning the level of influences that skills teaching in vocational senior high schools and emotional management programmes have on skill learning.
- Design the experimental study and choose subjects.
- Design the teaching textbook for the experimental courses.

Table 1: The different neurotic and inferiority tendencies on students on a professional learning basis.

Subjects	Groups	N	M	SD	F	p
Professional cognition	High neurotic	16	56.69	8.15	0.582	0.43
	Low neurotic	17	59.18	9.72		
	High inferiority	15	58.20	9.59	0.016	0.04*
	Low inferiority	16	65.50	8.78		
Skill practice	High neurotic	16	58.06	14.97	0.151	0.79
	Low neurotic	17	59.59	16.98		
	High inferiority	15	62.93	13.70	0.029	0.77
	Low inferiority	16	64.50	16.08		

* $p < 0.05$

- Develop the related questionnaire about emotional management.
- Edit the unit textbook for emotional management.
- Undertake the experimental teaching.
- Learning achievement tests and data analysis after the experiment.

Data Collection and Analysis Procedures

The experiment group took the ten units of the emotional management programme; in addition, both the control and experiment group took Lai’s Personality Test at the beginning of the semester.

At the end of the semester, they took tests using the *Skill Learning Students’ Interpersonal Relationship Questionnaire*, *Skill Learning Students’ Emotional Stability Questionnaire* and *Skill Learning Behaviour Questionnaire*. The skill practice and related knowledge grades were also collected to be the basis for professional learning achievement.

The test was put into practice in accordance with Lai’s Personality Test Instruction Manual and four different score levels of sense of inferiority, nervousness, variability and melancholy were adopted. Vocational Senior High School Students’ grades of last semester of skill and related professional knowledge were collected from teachers as the pre-test scores for the learning basis.

Students were tested using the *Skill Learning Students’ Interpersonal Relationship Questionnaire* and *Skill Learning Students’ Emotional Stability Questionnaire*. Furthermore, the related knowledge and skill practices of the skill learning courses at the end of the semester were taken as the skill learning achievement grades.

The influence of the emotional management programme’s influence on students’ interpersonal relationships and emotional stability was tested with a one-way MANOVA analysis.

The influence of the emotional management course on the learning basis, neurotic tendency, and inferiority tendency on students’ interpersonal relationships and emotional stability was tested with a two-way MANOVA analysis.

DATA ANALYSIS

The effects of emotional management instruction on students’ emotion stability, interpersonal relationship, skill learning behaviour and skill learning achievement in vocational senior high school are shown in Table 2. There were no significant effects found on the students’ interrelationships, although there was a

Table 2: One Way MANOVA test on every dependent variable of the different experimental treatment group students.

Source of variance	Wilk’s Λ or F value	p value
Programme main effect test	$\Lambda=0.726$	0.04*
Interpersonal relationship	F=1.496	0.28
Emotional stability	F=3.980	0.02*

*p<0.05

significant difference found regarding the students’ emotional stability.

Table 3 shows that the experimental group students were superior to the control group ones on emotional stability, skill learning behaviour and professional cognition.

Table 4 reveals that the students in the experimental group were superior to control group ones on three dimensions under emotion stability: learning-esteem, learning enjoyment and autonomy. As such, the emotional management programme improved the students’ emotional stability.

The effects of emotional management instruction on students’ emotional stability, interpersonal relationship, skill learning behaviour and skill learning achieve-

Table 3: The average scores of the experimental group on every questionnaire.

Dependent variables	Experimental group (N=50)		Control group (N=50)	
	M	SD	M	SD
Interpersonal relationships	57.63	4.44	58.42	5.17
Emotional stability	36.77	2.39	38.53	2.36

Table 4: Scores for the two groups on interpersonal relationship and emotional stability.

Questionnaire	Dimension	Control group		Experimtl group	
		M	SD	M	SD
Inter-personal r ship	Sense of trust	17.92	1.56	17.98	1.57
	Interaction	15.32	3.45	15.77	3.46
	Sociability	24.39	4.17	24.66	3.72
Emotional stability	Learning-Esteem	9.81	1.53	10.98	1.38
	Learning enjoyment	15.50	1.84	18.73	1.83
	Autonomy	11.47	1.58	14.82	1.63

ment among different skill learning basis in vocational senior high school are shown in Table 5.

There was no significant interaction between the professional learning basis and the experimental group students on interpersonal relationship and emotional stability.

In emotional stability, there was no significant interaction between the professional learning basis and the experimental group students on every dimension of emotion stability, but there was significant difference on learning enjoyment between the different professional learning bases ($p < 0.05$).

Illustrated in Table 6, the low professional learning basis students were superior to high professional learning basis ones on learning enjoyment. The high professional learning basis students were superior to low professional learning basis ones on autonomy in the experimental group. There was no significant difference on different dimensions of emotional stability among control group students. As to interpersonal relationships, there were no significant interaction between different professional learning basis and experimental treatment group students on every dimension of interpersonal relationship. In the final statistical analysis, high professional learning basis students in the experimental group were superior to the control group on interaction.

The effects of emotional management instruction on students' emotional stability, interpersonal relation-

Table 5: Two-way MANOVA test on every dependent variable of different professional learning basis students.

Source of variance	Wilk's Λ or F value	p value
Skill learning basis main effect test	$\Lambda=0.895$	0.32
Interpersonal relationship	$F=0.017$	0.90
Emotional stability	$F=0.306$	0.58

Table 6: Two-way MANOVA test on every dimension of different professional learning basis students on emotional stability.

Source of variance	Wilk's Λ or F value	p value
Skill learning basis main effect test	$\Lambda=0.904$	0.13
Learning-esteem	$F=0.820$	0.37
Learning enjoyment	$F=4.495$	0.04*
Autonomy	$F=1.822$	0.18

* $p < 0.05$

ship, skill learning behaviour and skill learning achievement among different neurotic tendencies in vocational senior high school are shown in Table 7. There were no significant interactions between different neurotic tendency and experimental treatment group students on interpersonal relationships and emotional stability, although there was significant main effect on different neurotic tendency students ($p < 0.05$). Analysis showed that the high neurotic tendency students were superior to their low neurotic tendency counterparts on learning-esteem and learning enjoyment in the experimental group.

Table 7: Two-way MANOVA test on every dimension of the different neurotic tendency students on emotion stability.

Source of variance	Wilk's Λ or F value	p value
Neurotic main effect test	$\Lambda=0.836$	0.02*
Learning-esteem	$F=0.021$	0.89
Learning enjoyment	$F=8.956$	0.00*
Autonomy	$F=4.225$	0.04*

* $p < 0.05$

Table 8 illustrates that there were no significant interactions between different neurotic tendency and experimental group students on every dimension of interpersonal relationships. However, there was a significant effect on neurotic tendency and there were significant differences between different neurotic tendencies on the interpersonal relationship dimension, namely: sense of trust and interaction. Final statistical analysis showed that low neurotic tendency students were superior to the high neurotic tendency students on sense of trust. However, high neurotic tendency students were superior to low neurotic tendency students on interaction in both the experimental and control groups.

The effects of emotional management instruction on students' emotional stability, interpersonal relation-

Table 8: Two-way MANOVA test on every dimension of different neurotic tendency students on interpersonal relationship.

Source of variance	Wilk's Λ or F value	p value
Neurotic main effect test	$\Lambda=0.709$	0.00*
Sense of trust	$F=10.538$	0.00*
Interaction	$F=10.048$	0.00*
Sociability	$F=1.477$	0.23

* $p < 0.05$

ship and skill learning achievement among different inferiority in vocational senior high school are exhibited in Table 9. There were no significant interactions between different inferiority tendency and experimental treatment group students on emotional stability and interpersonal relationships.

Indeed, there were no significant interactions between different inferiority tendency and experimental treatment group students on every dimension of emotion stability. But there was significant main effect on different inferiority tendency ($p < 0.05$) and a significant difference on students' learning enjoyment ($p < 0.05$). Final analysis indicated that high inferiority tendency students were superior to low inferiority tendency ones in the experimental group and control group on learning enjoyment.

Table 9: Two-way MANOVA test on every dimension of different inferiority tendency students on emotional stability.

Source of variance	Wilk's Λ or F value	p value
Inferiority tendency main effect test	$\Lambda = 0.825$	0.01*
Learning-esteem	$F = 0.184$	0.67
Learning enjoyment	$F = 12.137$	0.00*
Autonomy	$F = 1.817$	0.18

* $p < 0.05$

Table 10 shows that there were no significant interactions between different inferiority tendency and the experimental treatment group students on every dimension of interpersonal relationships. However, it was found that there was a significant effect on different inferiority tendency ($p < 0.05$), as well as a significant difference on students' interaction ($p < 0.05$). Final analysis showed that the high inferiority tendency students were superior to the low inferiority tendency students on interaction in the experimental treatment group.

Table 10: Two-way MANOVA test on every dimension of different inferiority tendency students on interpersonal relationships.

Source of variance	Wilk's Λ or F value	p value
Inferiority main effect test	$\Lambda = 0.780$	0.00*
Sense of trust	$F = 1.393$	0.24
Interaction	$F = 12.391$	0.00*
Sociability	$F = 2.822$	0.18

* $p < 0.05$

CONCLUSIONS

Emotional Stability

Students in the treatment group had higher emotional ability than those in the control group. Students in the treatment group were superior to those in the control group in the dimensions of autonomy, learning self-esteem and learning enjoyment.

As for the different basis of professional cognition and skill practice, the students of low professional learning basis in the treatment group had higher enjoyment in learning than those of the high professional learning basis. Also, high professional learning basis students had higher autonomy than the low ones. However, no significant differences existed among the control group in this aspect. Therefore, the emotion management courses benefited and promoted students' emotional stability.

There were significant differences among the treatment group on emotional stability regarding different neurotic tendency. The high neurotic students in the treatment group had higher self-esteem and enjoyment in learning than low neurotic ones. And the low ones have higher autonomy than the high ones. In the control group, the high neurotic students had higher enjoyment than the low ones, existing no significant differences among self-esteem and autonomy in learning. The emotional management courses influenced the emotional stability and the different levels of neurotic tendency.

As for the different tendency of inferiority, the high inferiority students who had received the emotional management courses had higher enjoyment in learning than the low ones. But the low ones had higher autonomy than the high ones. Therefore, the emotional management courses can enhance the high inferiority students' enjoyment in learning and also increase the low ones' autonomy.

Interpersonal Relationships

The emotional management courses did not affect students' interpersonal relationships. With regard to the different basis of professional cognition and skill practice, the high basis in the treatment group had higher interaction than the high ones in the control group. But there were no significant differences among the low ones and others. Therefore, the courses benefited the peer interaction to the high basis students.

As for the different neurotic tendency, the low neurotic students in the treatment group had a higher sense of trust than the high ones. But the high ones

interacted with others better than their low counterparts.

Regarding different inferiority levels, the high ones in the treatment group had lower sociability and interaction than the low ones, but there were no significant differences in the sense of trust. Therefore, it is necessary to counsel and establish students' confidence in teaching to enhance their confidence, peer interaction and sociability.

SUGGESTIONS

Those who accepted the experimental courses had higher emotional stability than those who did not accept those courses. Furthermore, the courses benefited and promoted students' emotional stability in terms of different learning bases, neurotic tendency and self-abasement tendency. As for the courses of vocational schools, in general, teachers emphasised related professional theories and in demonstrating correct technological operations in teaching skill learning, neglecting the influence of affection and attitudes on students' skill learning achievement. Examples of these courses related to personal learning emotion include triggering motivation, controlling learning emotion, establishing peer relationships, managing time and developing the ability of problem solving.

It was also found that the emotional management courses helped students at different bases and different personalities. Therefore, this study suggested that option courses could be added to the professional cognition and skill practice courses in school. Another option is for professional teachers to combine the field courses with the courses related to emotional management. In doing so, students' professional skill learning performance may be improved.

In the performance of interpersonal relationships, it was found that high neurotic tendency students or those who received the emotional management programme had higher interaction than the low neurotic tendency ones. The low neurotic tendency students had higher sense of trust than the high ones. This phenomenon indicated that the emotional management course designed for this study benefited the vocational senior high school students' interpersonal relationships in the practice factory and also promoted their learning. On the other hand, as for the students of different personality, they had different achievements in interaction and establishment of interpersonal relationships.

Future Studies

The practice courses of vocational high schools emphasised students' work safety, mutual help, and

cooperation. These abilities play an important role in an individual's future career development and in the achievement of organisational goal. Therefore, it is necessary for future vocational education to do further studies on how to plan emotional management courses into the class schedule, how to improve the teaching methods of the courses and how to emphasise the evaluation of professional achievements.

The courses designed in this study were based on the literature review. The courses included static information plus activities of teacher and student interaction, but lacked related multimedia technology facilities. In addition, due to the operation trait and the environmental limits of the factory, future studies could examine the influence of applying group discussion and cooperative teaching to the students of different personalities in vocational senior high school.

The hours of practice courses in vocational senior high school are often arranged longer than that of general subjects. Moreover, the working type is dynamic so that students are easily influenced by their emotions during the period of practice time. Thus, the goal of learning is hard to achieve. It is necessary to continue further studies on how teachers can help or consult students to manage their emotions appropriately in the students' learning environment, how to manage the changes in students' emotions or how to manage or modify their teaching strategies.

REFERENCES

1. Wang, S.L., The adolescent emotion development and problems guide of junior high school. PhD Thesis, National Taiwan Normal University (1990).
2. Lin, C.D., *Psychology of Senior High School Students*. Taipei: Wu Nan Bookstore (1995).
3. Liu, A.Y., *Psychology*. Taipei: San Min Bookstore (1982).
4. Yo, H.S., *Transition and Emotion Psychology*. Taipei: Wu Nan Bookstore (1993).
5. Lazarus, R.S., Kanner, A.D. and Folkman, S., *Emotion: a Cognitive Phenomenological Analysis*. In: Plutchik, R. and Kellermen, H. (Eds), *Emotion: Theory, Research and Experience*, Vol.1. New York: Academic Press, 189-218 (1980).
6. Shue, W.M., The study of the consult effect on self-assertiveness for shy children. Masters Thesis, National Taiwan Normal University (1989).
7. Leone, S.D. and Gumaer, J., Group assertiveness training of shy children. *The School Counselor*, 27, 2, 134-141 (1979).

8. Yang, J.C., The study of the consult effect of self-assertiveness on female students in Lan-Ya junior high school. Masters thesis, National Taiwan Education College (1985).
9. Meichenbaum, D. and Comeron, R., *Stress Inoculation Training: Toward a General Paradigm for Training Coping Skills*. In: Jaremko, M.E. (Ed.), *Stress Reduction and Prevention*. New York: Plenum Press (1983).
10. Wu, L.J., *Let's Make Us Much Happier: the Rational Emotive Education Curriculum*. Taipei: Psychology Publisher Co. (1989).

BIOGRAPHIES



Ming-Kung Yang was born in 1955 and his family has six children, including three sisters and two brothers. After having graduated from Hsin-Chu Industrial Senior High School in 1973, Prof. Yang entered into industrial education at the National Taiwan Normal University in Taipei, Taiwan,

to continue his studies. He completed his Master's degree in 1986 in the field of vocational technical education and taught in Da-An Vocational High School in Taipei.

In 1991, he received financial support from government and went to Iowa State University in the

USA to pursue PhD. Three years later, he entered the Industrial Education Department at the National Changhua University of Education in Changhua, Taiwan, to be an associate professor.

Prof. Yang teaches the foundations of vocational technical education, auto body repair, technical reports and mechanical principles. He is engaged in research, lecturing and educational service and is now a director of teaching practice.



Gwo-Shing Wang hails from Yunlin county of Taiwan. He has entered and participated in the vocational and technology education system for 12 years since 1989. This includes the automobile department of Province Chia-I Vocational Senior High School (1989-1992), Industrial Education Department of National Changhua University of Education in Changhua, Taiwan (1993-1997), military service for Taiwan (1997-1999) and the Graduate Department of Industrial Education of National Changhua University of Education (1999-2001).

His favourite interest is reading in education and the social and psychology related domains. His ideal education is just *joy and self-confidence can see your future*, and he believes that these principles are the educational goals of vocational and technology education in the 21st Century.

4th Baltic Region Seminar on Engineering Education: Seminar Proceedings

edited by Zenon J. Pudlowski & Hans Peter Jensen

The *4th Baltic Region Seminar on Engineering Education* was hosted by the Technical University of Denmark (DTU) in Lyngby, Copenhagen, Denmark, between 1 and 3 September 2000. The DTU is widely regarded as a leading force in the modernisation of engineering education in Europe and beyond.

This Seminar series has a firm set of resolute objectives: to bring together educators, primarily from the Baltic Region, to continue and expand on debates about common problems and challenges in engineering and technology education; to exchange views on the need for innovation in engineering and technology education; and to stimulate the links, collaboration and friendships already established in the region.

Thirty-eight papers from senior academics representing 15 countries worldwide are in this set of Proceedings, including the three opening addresses. The focus of the Seminar papers covers such diverse and relevant issues as:

- Important questions of engineering education
- New trends and recent developments in engineering education
- Quality improvement in engineering education
- Innovation and alternatives in engineering education
- Course development in engineering education
- Learning strategies in engineering education

As with all UICEE publications, the papers in this collection were subject to a formal peer review process, and should ensure the future value of these Proceedings for the Baltic region and internationally.

To purchase a copy of the Congress Proceedings, a cheque for \$A70 (+ \$A10 for postage within Australia, and \$A20 for overseas postage) should be made payable to Monash University - UICEE, and sent to: Administrative Officer, UICEE, Faculty of Engineering, Monash University, Clayton, Victoria 3800, Australia.
Tel: +61 3 990-54977 Fax: +61 3 990-51547