

**Reshaping
Technological-Vocational Education**

Nurturing quality professionals

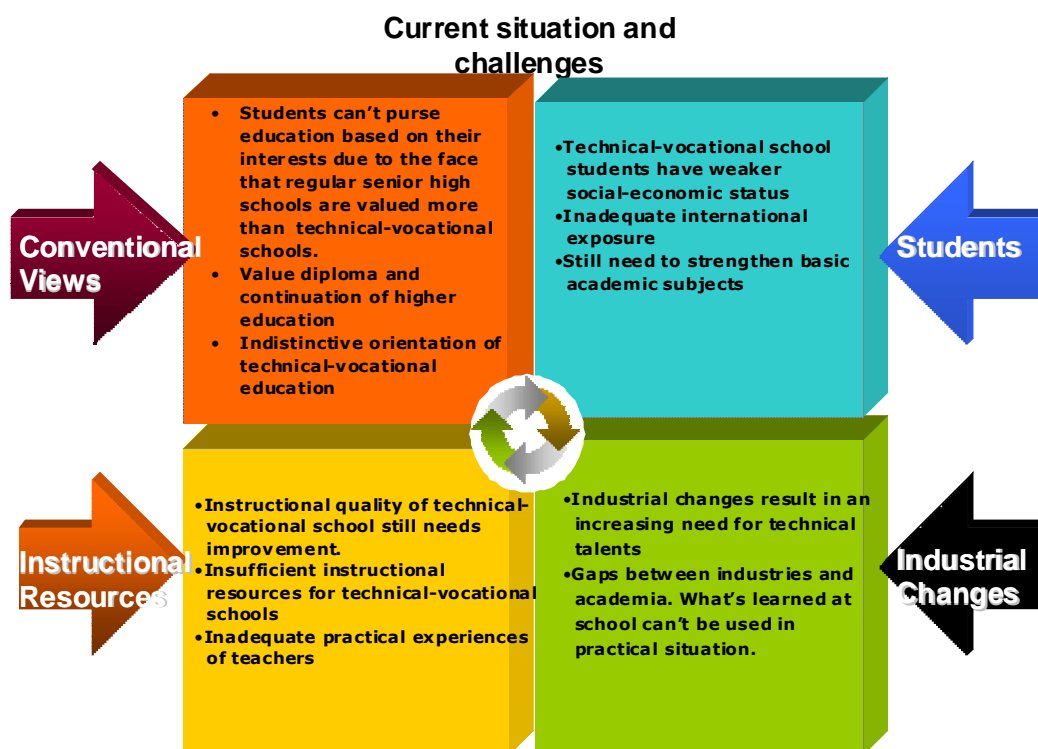


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I. The origin of the Project

Taiwan has experienced swift political, economic and social changes. Also, industrial structure has changed, labor-intensive industries have moved offshore, and the production volume and the number of employees in the service industry have exceeded those in the manufacturing industry. All industries gradually embrace high technology, information-technology and automation. The changes in the structures of the work force and professions as well as abilities demanded by the market show that life-long learning and continuing education are necessary. In addition, the increase of core-families and decrease of birth rate have caused the number of students to drop. Furthermore, general senior high schools and university have been developing rapidly. Consequently, technological-vocational schools face tremendous challenges to survive and develop.

Technological-vocational education should receive positive remarks on its contribution since it has nurtured countless technicians of basic level who have fostered the economic and social development of Taiwan. However, as society evolves and industries upgrade, technological-vocational education are facing the following problems and challenges.



A. Conventional Views

1. False stereotypes in Society

Traditional scholar-officials have made such a great impact in Taiwan's society that people generally have the false stereotype that general education outweighs technological-vocational education. Consequently, junior high school teachers do not agree much with technological-vocational education. They are often opposed to the idea that students with better academic performance choose to study at technological-vocational schools. Some parents also tend to believe that children will be less successful in the future if they enter technological-vocational schools.

Since our society does not support technological-vocational education enough, students choose general senior high school and university over others regardless of their nature, interests and abilities. As a result, students generally make choices that do not agree with their nature. Inadequate attention paid to technological-vocational education and low confidence of technological-vocational school students have impeded on the overall development of technological-vocational education.

2. Indistinct Orientation of Technological-Vocational Education

After the channels to higher education were opened to technological-vocational school students, 73% of the senior vocational school graduates choose to continue their education over job market.

As most senior vocational school graduates choose education over employment, the orientation between vocational and general senior high schools becomes indistinct. As an increasing number of senior vocational high schools open four-year college programs, the distinction between higher technological-vocational education and general higher education further blurs.

Without clear distinction and orientation, technological-vocational education and general education will continue mixing so as to influence the wholesome development of technological-vocational education. Even worse, the technological-vocational education system might disrupt and disintegrate as a result.

B. Instructional Resources

1. Insufficient educational resources and instructional quality of the technological-vocational education awaiting to improve

Compared with students from the general educational system, students from the technological-vocational education system are generally from less well-off families, having difficulties in learning academic subjects and achieving less in the academic arena. To address this general problem facing them, it is necessary that the technological-vocational education equipped with more facilities so that professional instruction can be more efficient.

2. Inadequate Practical Experience of Teachers

Taiwan practices identical hiring, salary, promoting and rewarding systems for both faculties in the technological-vocational system and the general education system. Therefore, both systems share the educational background, value judgments, thinking pattern, and promotional mechanism. For instructors of the technological-vocational education system in Taiwan, fundamental requirements still focus on their academic background, the amount of paper published in international journals such as SCI and SSCI. As a result, faculties value research projects over practical experiences and they do not have enough practical experiences.

C. Students—Insufficient exposure to internationalized environment and inadequate abilities in fundamental academic subjects

In the era of high-technology, industrial technologies change at a fast pace today. To accommodate students to these changes, it is considered important that students have basic academic literacy in order to venture in the job market. Compared to students from the general educational system, vocational school students in Taiwan are generally weak in Chinese, foreign languages, mathematics and science. They are also exposed less to the internationalized environment. These are areas that need to be addressed in order to meet students' needs in their future pursuit of jobs.

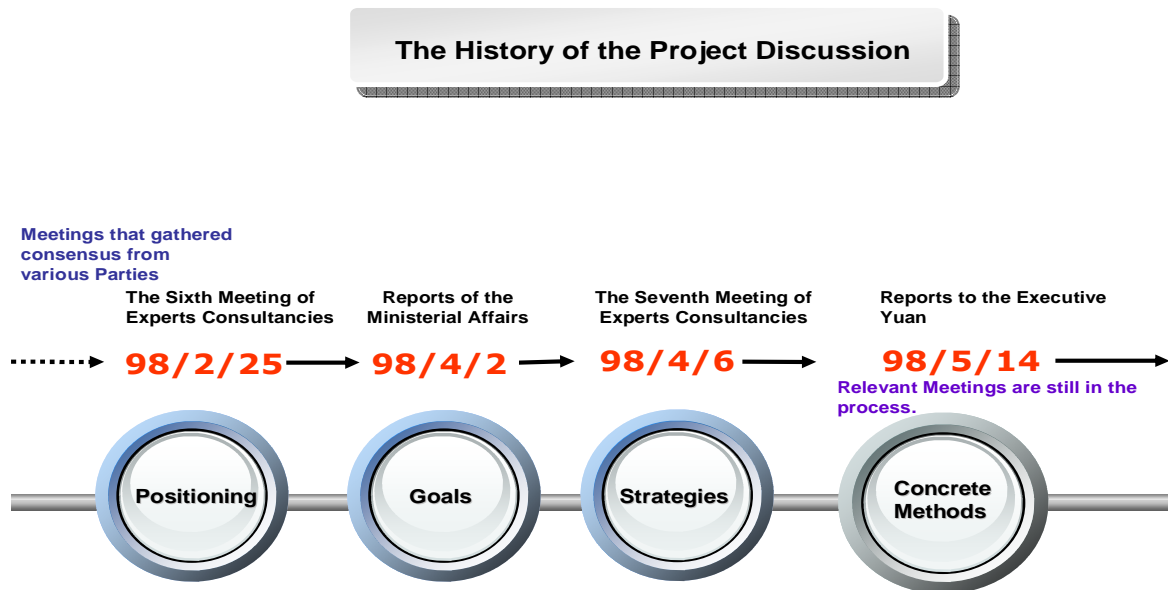
D. The gap between the industries and academia -- The gap between the industries and academia makes it impossible to apply what is learned at school into practical use.

In recent years, it was widely discussed among industries that vocational school graduates do not have the abilities that they demand for. This situation can be explained as below: schools do not have enough interaction with industries, the faculty has too little practical experience, industries participate very little in the curriculum design, the teaching materials have incorporated with little job-related practical materials, the promotion system is based too much on the academic performance, and few incentives are provided for teachers to promote cooperation between the academia and industries.

It is the academia that leads the review and evaluation of the technological-vocational education in Taiwan. Industries have very little participation in reviewing it. To shorten the gap between the actual abilities that vocational school graduates have and the practical abilities demanded in the industry, it is best to learn from the operational mechanisms of other countries. For instance, to strengthen students' abilities so that they can increase the chance to be employed, technological-vocational schools can hire talents from the industry as part-time instructors or consultants, open off-campus internship opportunities to students and encourage the practice of the "last mile" programs.

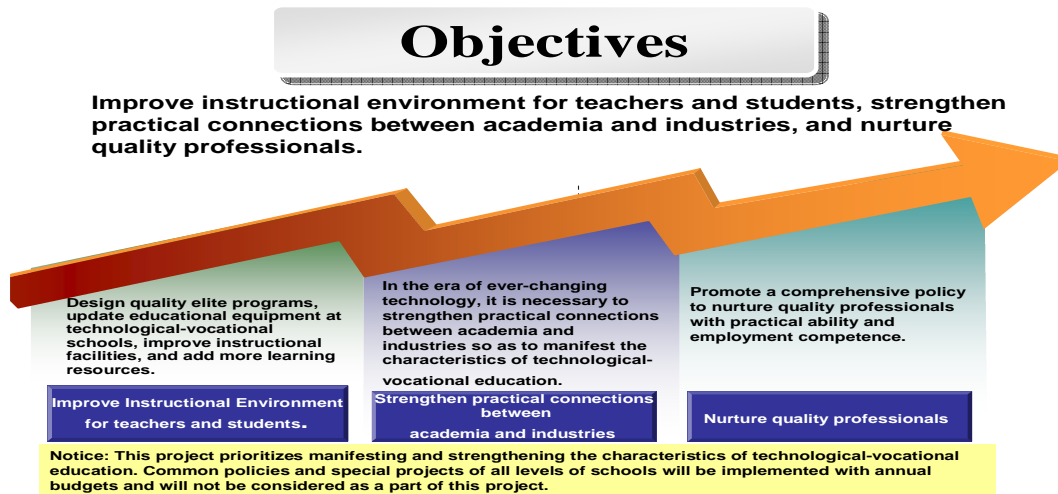
In view of the importance of technological-vocational education and the expectations gathered from various sectors in society, one of the major missions of Ministry of Education is to reshape technological-vocational education based on the existing foundation and nurture more quality professional talents.

II. The Process



To research and promote the project of reshaping technological-vocational education, Ministry of Education has gathered senior presidents of general universities as well as technological-vocational schools, scholars of education and relevant departments in MOE in meetings addressing this issue. Since October, 2008, Minister Zheng has led eight meetings gathering experts to clarify the position of future technological-vocational education as well as the possible dimensions that should be covered in reshaping it. With internal meetings and opinions gathered from various parties in different occasions, consensus has been reached in various policies and their practice strategies. Planning and practices will be focused first on concrete and feasible parts. This project has received permission for future reference in the meeting numbered 3144 of the Executive Yuan on May 14, 2009.

III. Content of the Project

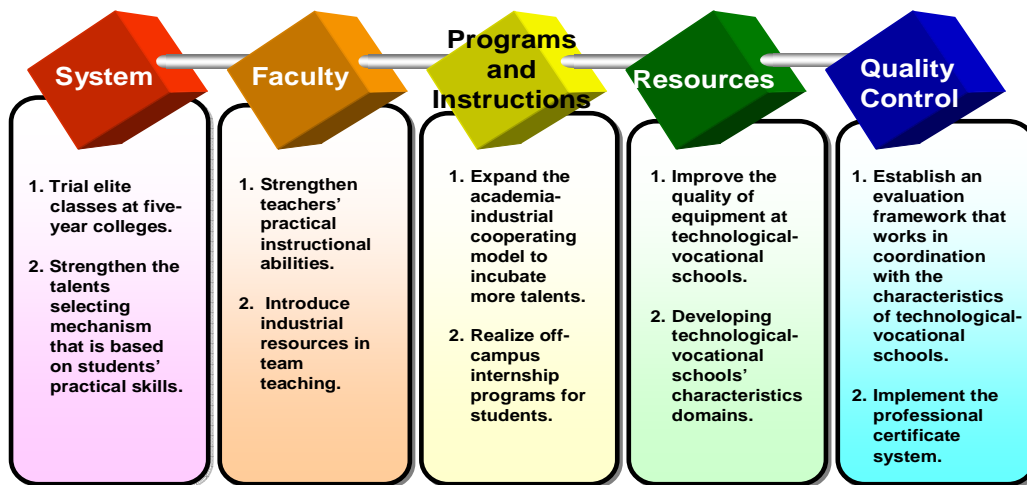


To reshape technological-vocational education, a wide range of dimensions and policy strategies are involved. The priority of this project aims at manifesting and strengthening “the characteristics of technological-vocational education.” Practices that are common to all levels of schools and other projects will be carried out with annual budgets. As a result, aside from on-going policies, this project for technological-vocational schools focuses on their capability in “strengthening practical skills” and “nurturing technological talents.” The project incorporates five development dimensions and ten strategies in implementing policies. It is a must that, from the fundamental ideas to the overall practice, each strategy should be strictly realized phase by phase. It is expected that with the practice of this project, the goals to “improve the instructional environment, strengthen the practical connection between academia and industries and nurture quality professional talents” will be achieved.

There are ten strategies in the project, on-going projects including strengthening instructors’ practical instruction abilities, introducing resources from the industry to team-teaching programs, realizing off-campus internship programs, improving and enhancing equipments at senior vocational schools, establishing characteristic areas that vocational schools can develop, establishing an evaluation mechanism that is in coordination with the characteristics of technological-vocational schools, expanding the nurturing model that closely connects the academia with industries and

strengthening the mechanism in selecting talents with practical abilities. As for mid-term and long-term goals, a trial five-year-college program for elites with practical abilities and professional certificates acquisition system will be promoted and realized. Each strategy manifests the spirit of putting practical abilities in use to the fullest, and also strengthens the practical connections between industries and academia. Based on phases of promotion, the strategies, blueprints of procedures and estimated goals to be achieved are described respectively as below.

10 Strategies



Strategy One: Strengthening instructor's practical instruction abilities

In the school year of 2008, 66.8% of the full-time teachers in technological-vocational schools had no practical professional experience. This is a high ratio. Therefore, it is necessary and urgent to improve technological-vocational school teachers' overall practical professional instructions and abilities, enrich their practical experience in the industry and encourage technological and vocational schools to hire new teachers with more than three-year experience in the industry.

A. Implementation

1. Encourage technological- vocational schools to hire teachers with a certain years of practical experience to teach professional subjects. The implementation results will be one of the items to be evaluated in granting comprehensive development project subsidies to private schools.

Teachers with a certain years of practical experience refer to those who have worked full-time for more than three years, or part-time for more than six years, in areas pertaining to the subject they are going to teach.

2. Enhance current technological-vocational school teachers' practical instruction abilities by organizing winter, summer or in-term programs for teachers to research, study, and serve at public/private sectors, or taking Sabbatical Leave to carry out in-depth service, for 6 months or a year. Refer to Appendix 1 for the "Drafted guidelines on subsidies to technological-vocational teachers who serve, study and research at private/public sectors".
3. Establish a comprehensive mechanism to submit, review and promote technical reports--revise indicators and review mechanism. Please refer to Appendix 2 for the "Draft report on the establishment of a comprehensive technical report or the submission, review, and promotion mechanism for practical research and study results".
4. Promote research and study programs for senior vocational school teachers so as to enhance their instruction quality. Refer to Appendix 3 for details on the "Draft plan on enhancing vocational school teachers' practical instruction abilities".

B. Estimated Goals to be Achieved

1. By 2012, 60% of the newly hired teachers for professional subjects will have practical experience, or an increase of 20% in newly hired teachers with practical experience each year.
2. By 2012, more than 60% of the entire faculty in the technological-vocational schools will have had work experience in the industry. (In 2008, 30%, or 6000 technological-vocational school teachers have had working experience in the industry. In 2010, 10% of the full-time technological and vocational school teachers will be selected to conduct research, study or serve at private/public sectors; 15% between 2011-2012.)
3. By 2012, the number of technical reports submitted by technological-vocational school teachers to be reviewed will increase by 150%.
4. Increase the number of senior vocational school teachers selected to study and conduct research at private/public sectors during the winter/summer vacations. From 2009 on, the number will increase by 20% each year.
5. Enhance teachers' instructional quality, attract junior high graduates to enroll locally into technological-vocational schools, and increase the localized enrollment number. The percentage of junior high school graduates' localized enrollment rate will increase by 1%.

Strategy Two: Introducing industrial resources into team teaching programs

In the school year of 2008, technological-vocational school teachers who have had practical experience accounted for 33.02% of the entire full-time faculty. This ratio seems to be a little too low. In order to connect the curriculum of technological-vocational school with the industrial demands, experts from various industries will be hired to jointly design the curriculum and team teaching so as to connect the curriculum and instruction content with the real industrial practices. It is necessary to nurture quality professionals who are able to deal with practical jobs.

A. Implementation

1. Use the “double-teachers” model and hire experts from the industry to conduct team teaching, which should account for less than one third of the total class hours. The class instructor still needs to lead the instruction throughout the whole semester, and will be paid according to the original monthly class hours.
 - a. Technological and vocational schools: Refer to Appendix 4 for the “Drafted guidelines for technological-vocational schools in selecting and appointing industrial experts to conduct team teaching”.
 - b. Senior Vocational schools: through the application and review process, senior vocational schools will practice the “double-teachers” model in “practical techniques program and programs addressing special needs of the industry.
2. Industrial experts will jointly design the curriculum and guide students in doing special practical projects, participating in inter-school competitions, performances and exhibitions and taking examination for licenses and certificates.

B. Estimated Goals to be Achieved

1. By 2012, industrial experts hired by technological-vocational schools will account for 30% of the entire full-time faculty. In other words, 10%, or 2,010 people will be hired each year.
2. Industrial demands and future directions of the industry will be introduced into schools; the cooperation between industries and academia and exchanges of talents will be fostered.

3. By 2010, it is estimated that senior vocational schools will have selected and appointed 400 person times of industrial experts. From 2011 on, there will be a 10% growth each year.

Strategy Three: Realizing off-campus internship programs

According to the 2007 scholarly research, only 32.8% of college graduates participated in visitation, off-campus internship or received cooperative education. Moreover, only 11.9% of the departments had organized internship for students. In Jan, 2009, numbers showed that 4.99% of college graduates were unemployed. The rate has reached a new high in the past 11 years. To increase the employment rate for future technological-vocational school graduates, it is necessary to formulate subsidy regulations to encourage schools to increase the percentage of students participating in off-campus internship programs. In addition to that, senior vocational schools should encourage students to use after-school hours to obtain practical professional knowledge, abilities and in-job experience off campus. Schools should also create more overseas internship opportunities for students.

A. Implementation

1. Subsidize and encourage technological-vocational schools to increase the percentage of students participating in off-campus internship programs. Refer to Appendix 5 for more details on the “Drafted guidelines for subsidizing technological-vocational schools in opening off-campus internship programs by Ministry of Education.
 - a. Public/ private technological-vocational schools will formulate annual plans in drawing up off-campus internship programs during the summer or semester.
 - b. Number of students receiving subsidies: 10% of the graduates, including 4-year-college division, five-year and two-year day divisions in technological-vocational schools. Students extending their study years, students from the continuing education division and graduate students are not included.
2. Off-campus internship for senior vocational school students:

- a. Revise “Guidelines for reviewing students’ off-campus internship achievements and educational training as well as the credits transfers” and encourage students to use after-school hours to obtain practical professional knowledge, abilities and in-job experience. Students can pursue internship opportunities on their own or take the internship at off-campus learning/ educational training agencies recommended by schools. Schools should recognize students’ off-campus achievements, relevant achievements at off-campus learning/education training centers and transfer credits taken from off-campus learning/education agencies. It is also necessary for schools to check up on students’ off-campus learning/training situations.
- b. Formulate “Guidelines for subsidizing high school students to expand their international perspective by Ministry of Education” and specify regulations regarding transferring overseas educational internship credits into the examining of vocational school students’ grades. Encourage students to take part in the overseas internship to develop their technological abilities, subsidize senior vocational school students attending overseas school or training agencies to learn professional techniques and take relevant courses, including professional foreign languages, workplace ethics and culture, information and techniques acquired in professional jobs, experiences such as internship and visitation at enterprises.

B. Estimated Goals to be Achieved

1. Students will experience realities in the workplace in advance and develop proper attitudes at work.
2. More practical instructional resources will be added to schools and student’s employment opportunities will be increased.
3. Pre-job training cost enterprises have to pay will be lowered and more talents for employment will be developed.
4. By 2012, technological-vocational school students receiving off-campus internship program will increase to 20% of the students in the previous school year. In other words, the percentage will increase to 10% in 2010, 15% in 2011 and 20% in 2012.

5. In 2009, an estimated of 100 senior vocational school students and teachers will participate in overseas internship in developing technological abilities. From 2010 on, there will be a 20% increase each year.

Strategy Four: Improving and enhancing equipment at senior vocational schools

Technological-vocational education and the acquisition of techniques need and rely a great deal on practical instructional equipment. Supporting equipment, standard equipment and facilities related to the content of subjects instructed at senior vocational schools will impact on the outcome of teachers' instruction and students' learning. Since 2009, MOE has adopted a formula-based distribution method to check and ratify the amount of budget for subsidizing 124 schools, including national senior vocational schools, senior vocational schools affiliated to senior high schools, special schools and their comprehensive occupational abilities departments, special programs at comprehensive high schools, practical technological skills programs and schools with continuing education programs.

A. Implementation

1. Increase substantial equipment for practical purposes in coordination with the new curriculum: with the project of expanding investment amount in public construction works, senior vocational schools will be equipped with general practical apparatus needed in classes. In the school year of 2009, a distribution method based on formulas was adopted to check and ratify the amount of budget for each school. Refer to Appendix 6 for detailed information regarding "Project on equipping national senior high schools with substantial equipment for practical purposes in the school year of 2009".
2. Establish regional technological instruction centers and equip the regions with instructional equipment for industrial purposes.

B. Estimated Goals to be Achieved

1. By 2010, 100% of the subjects in the curriculum will specify the standard equipment that is needed.
2. Schools will be assisted in developing local industrial characteristics, the gap between the urban and the rural areas will be shortened, a balance in distributing resources so as to nurture quality industrial technicians of the basic level will be reached.

Strategy Five: Developing characteristic domains of technological and vocational schools

Due to the increase in the number of colleges, limited educational resources for technological-vocational schools have been diluted, as a result, equipment needed in the practical and skill acquiring courses has not been upgraded and become outdated compared to current industrial equipment. Therefore, it is best to improve “faculty quality, equipment and curriculum.” In addition to that, with the upgrade of the industry and global competition, it is necessary to speed up in nurturing industrial talents that are both distinctive in their local Taiwan characteristics and competitive internationally.

A. Implementation

Promote “the Project of Model Schools with Characteristics” based on the existing strong points and incorporate that with local industrial resources so as to become a model technological-vocational school with characteristics.

1. Research focus: Draw up “Guidelines for subsidizing public/private technological-vocational schools in setting up model schools with characteristics”. Refer to Appendix 7.
2. Procedures: Each school will focus on one project that is divided into various stages in 4 years. The result of each year should be clearly stated with examining indicators. MOE will form a review group to review and check the project of each school.
3. Control and Examination mechanism: each school, before the annual check-up, should present its results achieved and a report addressing the achievements. These will be taken into consideration as a future reference in deciding the budget for next school year. If necessary, MOE shall visit the school.

B. Estimated Goals to be Achieved

By 2012, 50%-70% of the technological and vocational schools will be shaped into model technological/vocational schools with characteristics.

Strategy Six: Establishing an evaluation mechanism that is in coordination with the characteristics of technological-vocational schools

Since the school year of 1975 until now, the evaluation of technological schools has already resulted in positive competitions and improvement on the overall quality in the operation of schools. However, the evaluation focused more on supervising and directing administrative operations and inspecting and auditing functions, which could not manifest the characteristics of each school. In order to highlight the practical education characteristics of technological-vocational schools as well as to take the various characteristics, resources and visions of each school into consideration, future evaluation system shall look into the followings: consider what is in coordination with the characteristics of technological schools, support the improvement based on the diverse characteristics of each school, plan on how to manifest the distinctive points of the operation of technological schools, and guide each school to establish a self-improvement mechanism.

A. Implementation

1. Review and improve the current evaluation mechanism:

Entrust professional evaluating agencies to review the overall technological-vocational school evaluation system, and the evaluation on the characteristics of technological-vocational schools, including evaluating items and weight, evaluation procedures and mechanism. Entrusted evaluating agencies should also propose concrete strategies for improvements. For example,

- a. Scoring with extra weight: Indicators showing the characteristics of technological-vocational education will be scored with extra weight. For example, industrial and academia cooperation, the number of faculty from the industry, students' internship and the number of licenses and certificates.
- b. Adding characteristic indicators: Add indicators that will help bring out the characteristics of schools. Another way is to adjust the weight of each item in evaluation so that the development characteristics of each department and school will receive fair review.
- c. Set up a self-evaluation mechanism: Encourage technological-vocational schools to set up and realize self-improvement mechanisms that are in accordance with the development goals of the schools. Schools will keep up the mechanism by examining and reviewing it on a regular basis so as to improve school operation.

2. Establish a sound database of talents for the evaluating committee. It is best to select and appoint evaluating members who understand the characteristics of technological-vocational

education, and have the ethics and practical experiences in evaluating.

B. Estimated Goals to be Achieved

1. Revise evaluating indicators and the weight of each item timely, bring out the practical education characteristics in technological-vocational education as well as the distinctive development features of each school, and improve the operation performance of each school.
2. Gradually establish an evaluating system that helps technological-vocational schools shape up their characteristics, so that better operation results will be achieved.

Strategy Seven: Expanding the nurturing model that closely connects the academia with industries

There are six ways to promote special classes/academic programs through the interactions between industries and academia. In the future, cooperation between industries and academic should be expanded and closely connected to nurture talents who will meet the demands of industries.

Industrial/Academia special class	Importance	Implementation	Estimated Goals
Practical technical programs	Help students who are interested in learning techniques and those who are from less-well-off families to acquire skills and later get employed in the industry.	(1) Recruit students who have received technological education in the junior high. (2) The program focuses on the acquisition of techniques and nurture students for future employment. (3) Students enrolling from the school year of 2007 will benefit from free tuition each year for three years.	An estimated of 57,000 students will enjoy this program in three years.
Cooperation between enterprises and senior vocational schools	(1) Educational and social values assist minority students in continuing their education. (2) On-campus and off-campus internships allow students to earn	(1) Taking turns, shifting phases and internships are practiced. Among them, taking turns is the most commonly practiced. (2) From the school year of 2009 on,	By 2012, students from the three grades attending this project will not have tuition waiver. 47,400 people will benefit from the program.

	<p>allowances and acquire skills.</p> <p>(3) There are 35,396 students from 56 schools cooperating with 2,806 companies.</p>	<p>first-year, second-year and third-year students enjoy 3 years of tuition waiver.</p>	
<p>Classes designed for meeting the special industrial demands</p>	<p>(1) Meet the development of economic construction, nurture talents and provide students with more opportunities of continuing education and employment.</p> <p>(2) In the school year of 2007, 554 students enrolled through open admission into 14 schools. In the school year of 2008, 400 students enjoyed open admission into 11 schools.</p> <p>(3) From the school year of 2009 on, tuition-free education will not be exclusively provided to students who enroll through open admission. An estimated of 4,718 freshmen will benefit from tuition-free education.</p>	<p>(1) Three years of tuition-free education is offered.</p> <p>(2) Each school will organize open admission according to its respective situation.</p> <p>(3) Schools practicing open admission will receive project subsidies from MOE for the instructional equipment and budget for internship materials so as to strengthen internship instruction.</p>	<p>By 2012, 14,200 students of all three grades will be exempt from tuition each year.</p>
<p>Cooperation between industries and academia</p>	<p>Look after both students' educational and employment needs. Manifest the practical-oriented characteristics of technological-vocational education of "doing by learning, learning by doing."</p>	<p>Based on the 3 plus 1, namely vocational school + technological school + companies, similar educational systems such as 3+2、3+2+2、3+4 or 5+2 will be developed.</p>	<p>Nurture 3,000 students each year.</p>
<p>Industry Research</p>	<p>Meet the industrial development</p>	<p>Invite cooperating enterprises to</p>	<p>Approximately 1,600 vacancies</p>

Master Degree Program	demands for talents, support the R&D and innovation of the IT industry in Taiwan, and also enhance its competitiveness. 443 classes of 7,252 students will be approved.	jointly design the curriculum, which will serve as the base for strengthening of industrial and academia cooperation.	will be provided each year.
The last mile program	Strengthen students' comprehensive learning, or re-learning, cross-disciplinary innovation ability and practical experience in the last 1~2 years at school.	(1) Offer the program a year before students graduate to shorten the time and cut the cost that enterprises spending on training new employees. (2) Since the school year of 2008, MOE has worked with Council of Labor Affairs which evaluates the performance. Awards will be granted to those with excellent performance.	It is estimated that 30 academic programs will be approved each year.

Strategy Eight: Strengthening the mechanism in selecting talents with practical abilities.

Statistics show that there were 4,421 students admitted to technological-vocational schools without taking written examinations. They were admitted through various projects such as college stars program, elite classes, and admission through skill excellence. There were 28,000 students enrolled through the college entrance selection, taking up only 32.06% of the 101,100 students recruited by the day-division of four-year and two-year technological-vocational colleges. In order to get schools to attach more importance to practical instructions through various recruit methods, it is better that schools encourage students to demonstrate their practical abilities by participating in competitions and practical projects and getting certificates, so that they will find the most appropriate way to enter a school of higher level.

A. Implementation

1. Revise regulations regarding admission through awards/ certificates and direct admission for

students with excellent skills, and encourage students with skills and techniques to go for this option.

2. Consider that school recommendation be replaced by individual application. Also, schools are encouraged to evaluate students' practical abilities by interviewing students, reviewing their practical operations, works, grades, and documents.
3. Increase the ratio of students admitted through application or recommendation.
4. With the mechanism of distribution of enrollment for assisting and guiding technological education, junior high school students who take technological classes will be admitted to practical technological programs offered at senior vocational high schools. This will allow minority students to continue their technological-vocational education without taking a written entrance exam.

B. Estimated Goals to be Achieved

1. The number of students enrolled from admission through skill excellence will increase by 2% each year.
2. The number of students enrolled from admission through application and recommendation will increase by 5% each year.
3. An estimated of 15,000 students will enter vocational high schools each year through the mechanism of distribution of enrollment for assisting and guiding technological-vocational education.

Strategy Nine: A trial operation of five-year-college programs for elites with practical abilities

Enterprises report an increasing shortage of well-trained middle rank supervisors each year. This is a result of the decrease of five-year-college graduates that went from 34,232 students in 2001 to 18,919 in 2007. Also, the number of births dropped from 270,000 in 1998 to 190,000 in 2008. Furthermore, the number of colleges increased from 139 in 1997 to 164 in 2008. The above reasons make it necessary to reconsider the position of the five-year-college education system.

A. Implementation

1. Recruit quality junior high school students with particular aptitude and potential, and educate

them in emerging or specific areas that demand long-term cultivation.

2. Implement the strategy in coordination with the acquisition of professional certificates and the accumulation of practical internship experience to look after both the students' employment ability and their learning and development that match their aptitude.
3. Flexible connections between two education systems, such as five years plus two years at school, allow students to have an integrated, deepened and smooth channel to continue their higher education.
4. Satisfy the great demand for practical professional talents to make up the shortage in industrial technological talents.
5. Formulate a draft of a trial program to run elite programs in the five-year-college programs to nurture top quality workforce at technological-vocational schools. Refer to Appendix 8 for detailed information.

B. Estimated Goals to be Achieved

Up to 2010, the number of students recruited to the five-year-college will increase annually.

Strategy Ten: Realizing the Professional Certificate System

In the school year of 2007, technological-vocational school students have obtained more than 110,000 certificates. However, it only accounts for 17% of the entire students in technological-vocational school. Students certainly need more encouragement so that they will be motivated to obtain certificates. In addition to that, in order to strengthen students' technological abilities, increase the professionalism of technological-vocational schools and promote the vocational certificate system, tests for level-C skill certificates are held for current students each year. In the school year of 2008, students from public/private senior vocational high schools, including those in Taipei city and Kaohsiung city, have obtained 540,560 certificates issued by both public and private agencies. Among those certificates, 54.98% are C-level certificates, and only 3.675% are B-level certificates. To meet the future industrial structural changes and increasing demands for high

quality technicians, senior vocational school teachers and students should be encouraged to take and pass tests for B-level skill certificates so as to enhance teachers' professional ability in improving the instructional quality and students' competitiveness in the job market. In addition to that, it is best to legalize the professional certificate system, safeguard professionals' right to work and maintain professional quality so that consumers will benefit more.

A. Implementation

1. Without interfering the normalization of instruction, teachers and students should be encouraged to obtain a sufficient number of quality professional certificates.
 - a. Regulate rewarding and subsidy measures for technological-vocational schools.
 - b. Encourage technological-vocational schools to set this as one of the graduating requirements.
 - c. Based on classification of subject matters in the technological-vocational education system, the core competency standards for students will be regulated and established.
 - d. Encourage senior vocational school students to obtain C-level skill certificates so as to enhance their professional techniques and prepare them for the future employment. In addition, Council of Labor Affairs, Executive Yuan will be consulted in order to develop tests for new skills so that students from newly-established departments at vocational schools will be able to obtain certificates pertaining their major.
 - e. Encourage senior vocational school teachers to participate in tests for B-level skill certificates so as to improve their practical skills and instructional quality. The examination fee and training fee paid by the teacher prior to the test are refundable once s/he passes the test. Moreover, Council of Labor Affairs, Executive Yuan will reopen "special classes for the examination of key techniques," or the original program for teachers to take evaluation tests right after the training, to encourage teachers to take B-level skill certificate tests as much as possible.
 - f. Discuss the possibility to regulate that the salary scale of teachers obtaining A-level skill

certificates will be increased by one level.

2. Legalize professional certificates. Open cross-departmental meetings to discuss the legalization of professional certificates.

B. Estimated Goals to be Achieved

1. By 2012--

- The number of certificates obtained by technological-vocational school students will increase by 20% each year.
 - Up to 80% of technological-vocational schools will state clearly in the recruiting handbook that obtaining certificates is one of the graduating requirements.
 - The core competency standards for students will be established step by step.
 - From 2009 on, the number of current students successfully obtaining C-level skill certificates will increase by 10% each year.
 - From 2010 on, the number of teachers obtaining B-level certificates will increase by 10% each year.
 - Discuss the possibility of increasing the level of salary scale of teachers obtaining A-level skill certificates.
2. The departmental regulations of the Central Government will be expanded to include the ability to practice with license.

IV. Project Implementation Period: 2010-2012.

V. Estimated Results:

1. Nurture quality professional talents with competence, employment ability and competitiveness to meet the direction of national industrial development.
2. Lay a solid foundation so as to rebuild Taiwan's economy.

VI. Conclusion

Technological-vocational education has nurtured a big group of quality talents to assist Taiwan in its economic development and cultivated technicians of various levels to support the national constructions. The contribution made by technological-vocational education to the social-economic prosperity is tremendous. In the future, in the face of the international competition and industrial transition, technological-vocational education should review its stand constantly, keep up with the latest instructional content and methods, and further rebuild, reform, innovate and optimize itself based on its current foundation. In doing so, technological-vocational education will become a driving force in promoting the economic development of Taiwan.

In recent years, thanks to the support and participation of various industries and academia, technological-vocational educational policies have accomplished well and yielded fruitful results. In order to speed up the process of strengthening the development and sophistication of technological-vocational education, enhance students' professionalism so as to manifest the practical-oriented characteristics of technological-vocational education and nurture more technological talents, the followings will be realized. With the project of reshaping technological-vocational education, it is hoped that instructional environment will be improved for teachers and students, academia will keep up with the industry in practical matters, quality professionals will be nurtured, and national competitiveness will be enhanced. In doing so, the quality of schools will be improved; the compatibility of industries will be strengthened and the value of Taiwan will be added. Let technological-vocational education create another industrial development miracle so as to create economic prosperity for Taiwan again.