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AUTHOR Lee, Lung-Sheng Steven; Hwang, Jenq-Jye
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ABSTRACT

In Taiwan, curriculum standards for senior vocational schools and junior colleges are administered and promulgated by the Ministry of Education approximately every 10 years. Curricula for institutes of technology are principally school based. As a result of critiques of the current top-down or administration-based approach system of curriculum standard revision, five technological/technical and vocational education (TVE) curriculum development centers have been established. Senior vocational curriculum standards are under revision to reflect the need to strengthen students' basic academic skills by expanding the provision of basic skills courses; relieve students' study load by lessening the number of required courses; and encourage school-based curriculum development by allowing schools to design a part of their curricula to meet local needs. Current junior college curriculum standards have been in effect since the 1995 school year. The main ways in which relevance of the TVE curriculum and its development can be ensured areas follows: critical exploring or planning processes must be completed before every curriculum standard revision; performance standards should be developed to guide TVE curriculum development; criteria must be set and evaluated conducted to guarantee effective curriculum development; a school-based curriculum should be implemented; and greater involvement of industry and inclusion of work-based learning should be pursued. (A Chinese language version is attached.) (Contains six references.) (YLB)

CURRICULUM STANDARDS OF TECHNOLOGICAL AND VOCATIONAL EDUCATION IN TAIWAN, R.O.C.

Lung-Sheng Steven Lee* and Jenq-Jye Hwang**

*Department of Industrial Technology Education
** Department of Education
National Taiwan Normal University
Taipei, Taiwan, R.O.C.

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ABSTRACT

In Taiwan, R.O.C. (afterwards, called Taiwan or the R.O.C.), curriculum standards for senior vocational schools and junior colleges are administrated and promulgated by the Ministry of Education (MOE) approximately every 10 years, and curricula for institutes of technology are principally school-based. Based upon a literature review and the authors' notions, this paper describes and criticizes the curriculum standards of technological/technical and vocational education (henceforth called TVE, which comprises senior vocational school, junior colleges, and institutes of technology) in Taiwan. Focusing on the curriculum standards for senior vocational schools and junior colleges, this paper firstly explains the TVE curriculum development system and TVE curriculum structure, and then outlines the main ways in which relevance of the TVE curriculum and its development can be ensured. These ways are: (1) Critical exploring or planning processes must be completed before every curriculum standard revision. (2) Performance standards should be developed to guide TVE curriculum development. (3) Criteria must be set and evaluation conducted to guarantee effective TVE curriculum development. (4) A school-based curriculum should be implemented along with a course of study. (5) Greater involvement of industry and greater inclusion of work-based learning should be pursued.

TVE CURRICULUM DEVELOPMENT SYSTEM

TVE institutions in Taiwan are composed of three levels or categories: senior vocational schools, junior colleges, and institutes of technology (or nursing) (see Figure 1). The goal of senior vocational schools is to begin the development of entry-level skilled personnel while junior colleges aim to cultivate mid-level skilled manpower, and institutes of technology concentrate on developing a high-level skilled workforce.

Considered as a set of formal or informal courses constituting an area of specialization, a curriculum is at the heart of the TVE process [1]. In Taiwan, curricula for elementary, junior high, senior high, and senior vocational schools as well as junior colleges are

standardized and promulgated by the MOE. Curriculum standards for all levels of schooling are revised approximately every 10 years. Administered by the MOE, the general steps employed to revise the curriculum standards for senior vocational schools and junior colleges are as follows:

1. draft a curriculum revision proposal;
2. organize a curriculum revision committee, normally consisting of TVE administrators, teacher educators, school teachers, and curriculum specialists;
3. group curriculum drafting task forces, which include
   (1) general principles task forces, in charge of drafting instructional goals, courses, the offering sequence and teaching hours for each TVE program, and
   (2) research and design task force, in charge of drafting revision principles, a curriculum standard framework, revision model, etc.;
4. draft a syllabus for each course;
5. review and refine; and
6. promulgate and implement.

Obviously, the above revision steps represent a top-down or administration-based approach, which contrasts with a bottom-up, school-based or grass-roots approach. Some professionals have pointed out the weaknesses/problems of the above administration-based approach, which are as follows: (1) The revision cycle is too long to keep up with technological advancement and social change. (2) Little flexibility is allowed in curriculum implementation to meet the needs various among regions and students. (3) Few exploring or planning processes such as needs assessment (e.g., employment opportunities analysis, job analysis, program review) have been followed so little necessary student-related, school-related or community-related information is available. (4) The transition duration between curriculum standard promulgation and implementation is too short to achieve quality teacher training, textbook publication and facility adjustment. (5) Little follow-up evaluation has been conducted to determine the merits of the curriculum standards and to timely complete necessary revision. Therefore, periodic revisions of curriculum standards have been considered to be a point-to-point, not a linear effort. Point-to-point curriculum revision is often criticized as failing to consider curriculum development/design, which normally includes curriculum planning, curriculum implementation and curriculum evaluation.

As a result of those critiques, five TVE curriculum development centers, affiliated with four national institutes of technology (nursing) and a national comprehensive university, have been established. Yearly funded by the MOE, those five centers are, respectively, in charge of curriculum development for the following trade areas: industry, business, home economics and agriculture, nursing, and marine studies. Although some research projects have been completed and current senior vocational curriculum standard revision is being managed by these centers, due mainly to a lack of sufficient necessary professional support (e.g., curriculum specialists' involvement, inter-center communication and collaboration), the effectiveness of these curriculum development centers has not met TVE

educators' expectations.

At present, senior vocational curriculum standards are under revision and hopefully will be promulgated in 1997 or soon after. Table 1 shows the four levels of revision object and revision committee/ representatives.

TVE CURRICULUM STRUCTURE

Senior Vocational School

There are approximately 39 class hours per week, and each semester lasts 18 to 20 weeks for TVE institutions. According to current curriculum standards, the curriculum for senior vocational school is structured as follows:

1. Required general subjects, including Chinese, English, social studies and others, taking up between 27 and 40% of total class time, 204 to 228 class hours.
2. Required technical subjects, including
   (1) fundamental courses, such as physics, and introduction to computers, taking up between 6 and 19% of total class hours;
   (2) theoretical courses;
   (3) practice courses, together with theoretical courses, taking up between 33 and approximately 60% of total class hours.
3. Electives, taking up between 4 and 16% of total class time.
4. Common activities, taking between 5 and 6% of total class hours [2].

As mentioned earlier, senior vocational curriculum standards are under revision and hopefully will be promulgated in 1997 or soon after. The framework for revising the senior vocational curriculum standards is presented in Table 2. The primary features and the corresponding rationale behind these features are as follows:

1. Reflect the need to strengthen students' basic academic skills by expanding the provision of basic skills courses.

Many occupations in society today and in the future will increasingly require cognitive and affective skills in larger quantities than they do psychomotor skills. This suggests that TVE must be changed from traditional vocationalism (i.e., preparing individuals for low-skill, low wage employment) to new vocationalism (i.e., preparing individuals for non-professional high-skill, high-wage employment) or professionalism (i.e., preparing individuals for professional high-skill, high-wage employment) [3]. In addition, many students in and from senior vocational schools and junior colleges, who are supposed to be job-training-oriented, desire to go directly on to upper educational levels which lead to higher-paying jobs. These factors encourage expansion of vocational curriculum to increasingly include instruction in basic academic skills as well as the cognitive and affective aspects of jobs.

2. Relieve students' study load by lessening the number of required credits for graduation as well as decreasing the number of course subjects taught per semester.

With the increase of knowledge, school subjects have been added and senior vocational students have suffered from an overload of class hours and trivial subject courses. For example, approximately 210 graduation credits, equivalent, are currently required for three-year senior vocational students, but only 220 credits for five-year junior college students, and 128-148 credits for four-year students in institutes of technology. Thus, in the new curriculum framework, the number of credits required for graduation is reduced from some 210 to 162, and the number of course subjects per semester is decreased from more than 10 to less than 10. When relief from overloading of class hours (almost 39 class hours per week) becomes possible, students will have more flexibility in choosing courses based upon their own aptitudes and interests, and will be able to master their subjects.

3. Encourage school-based curriculum development by allowing schools to design a part of their curricula to meet the needs of their students and community.

As a small island, Taiwan deserves a rational national curriculum. However, in recent years, several educational reform groups have made an appeal for educational liberalization [4, 5]. As a result, four-year universities and colleges have been allowed to design their own curriculum. Required courses have been reduced in number, and selective and general/liberal courses have been increased in number. As a result of this curriculum liberalization movement, space in the vocational curriculum standards (15-35% of the minimum number of credits required for graduation) is reserved for senior vocational schools to develop their own curriculum. Hopefully, these school-developed courses will be established based on MOE-mandated courses.

The above reform of vocational curriculum standards appears, at first glance, to be a rather positive development, but celebration may be premature for two reasons: (1) The opportunity to solve the earlier-mentioned weaknesses/problems of the administration-based approach routinely employed for senior vocational curriculum standard revision and to change point-to-point curriculum revision to linear curriculum development is still uncertain. (2) Senior vocational school curricula are more complicated than senior high school curricula, but much fewer resources per capita have been invested in senior vocational school curriculum standard revision.

Junior College

Current junior college curriculum standards, called course table and syllabuses, were promulgated in 1993 or 1994 and went into effect in the 1995 school year. According to the curriculum standards, junior college courses are divided into the following three categories:

1. common courses, including four clusters--languages, social studies, math and sciences, and arts;
2. technical fundamental courses such as economics; and
3. technical core courses such as financial management.

A minimum of 220 credits is required for graduation from five-year junior colleges, and 80 credits is the minimal requirement at two-year junior colleges. The proportion of each

course category in these minimum requirements for graduation is listed in Table 3.

Institutes of Technology

Each institute designs its own program curricula according to its particular features. Graduation from an institute of technology normally requires a minimum of 148 course credits in four-year programs and a minimum of 72 course credits in two-year programs.

WAYS TO ENSURE RELEVANCE OF TVE CURRICULUM AND ITS DEVELOPMENT

Based upon the above description and analysis of the TVE curriculum development system and TVE curriculum structure, the ways to ensure the relevance of the TVE curriculum and its development may be outlined as follows:

1. Critical exploring or planning processes must be completed before every curriculum standard revision.

The TVE curriculum at any time is a reflection of social demands, student needs, and technological advancement, which are ever-changing. In order to ensure that the TVE curriculum standards will reflect these changes, some important program exploring or planning processes such as employment opportunities analysis, target job analysis, and goal realignment must be done before/or parallel to curriculum standard revision.

2. Performance standards should be developed to guide TVE curriculum development.

Helping students with their transition from school to work has always been a goal of TVE programs. In order to ensure that the TVE curriculum will help students succeed in this transition, performance standards in all TVE programs should be set and mandated so that all students may meet these standards in all courses. Modules may be designed around performance standards in each course to provide more competency-based, open-entry, and open-ended instruction and to allow students to learn at their own pace [6].

3. Criteria must be set and evaluation carried out to guarantee effective TVE curriculum development.

It is necessary that TVE provide better curricula to educate the nation's future work force. In order to economically and effectively develop an appropriate TVE curriculum, criteria must be set and evaluation carried out to improve the effectiveness of current curriculum development center(s), or to establish a new center which will become a hub for current affiliated centers.

4. School-based curriculum should be implemented along with a course of study.

Senior vocational schools and junior colleges often inappropriately alter curriculum standards for the sake of ease of implementation. For example, many students' selective courses are changed to teachers' "selective" ones, and the instructional administration of many schools is *Laissez-faire* (i.e., non-directed or far away from curriculum standards).

Compared to curriculum standards, which are often considered as an official curriculum, the curriculum actually implemented in schools/classrooms/laboratories more directly affects the students. In order to ensure that MOE-mandated and school-developed curricula will be effectively implemented in senior vocational schools and junior colleges, a course of study for each course area should be required by school administration and possibly by educational authorities.

5. Greater involvement of industry and greater inclusion of work-based learning should be pursued.

The TVE curriculum is fundamentally praxiological, so its development should be pragmatic. In order to ensure that the curricula of TVE programs meet the demands of their corresponding industries, which are the future workplaces of their students, greater involvement of industry such as through participation in advisory committees and cooperative education should be pursued. Additionally, someone who wishes to learn to swim should get into the water. This principle suggests that greater inclusion of work-based learning should be sought to help TVE students through participatory learning and with the school-to-work transition.

REFERENCES

[1] Pucel, D. J., The curriculum, Vocational Education in the 1990s: Major Issues. Chapter 8, pp. 157-172, Prakken, Ann Arbor(1990).

[2] Hwang, J. J., and Lee, L. S., The construction of guidelines for revising vocational high school curriculum standards. Educational Research & Information, 4(2), pp. 22-36(1996).

[3] Gray, K., Vocationalism and the American high school, Journal of Industrial Teacher Education, 33(2), pp. 86-92(1996).

[4]Ministry of Education, Educational Report of the Republic of China on Taiwan: Perceptions of Education towards the twenty-first Century. Republic of China(1995).

[5] Yung, C. S., Technological and vocational education in Taiwan, R.O.C.: Transformation and development. IVETA '96 International Conference on Vocational Education and training--Keynote Speeches(1996, May 1-4).

[6] Imel. S., Vocational education performance standards. ERIC Digest, No. 96(1995).

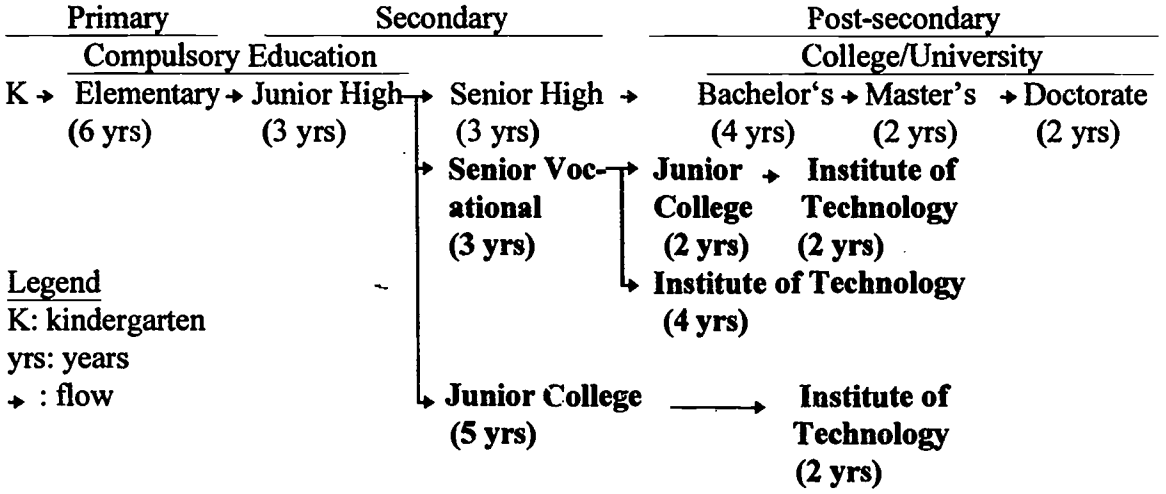

Figure 1. The school system of Taiwan.

Notes: 1. TVE institutions are typed in **boldface**.

2. In the school year of 1994, 21% of about 380,000 junior high school graduates were admitted to senior high schools, 45% to senior vocational schools, 9% to five-year junior colleges, and 12% to complimentary programs in senior vocational schools, with a remaining portion of 13%.
3. At the post-secondary level, additional three-year junior college programs will be phased out within several years.
4. Some institutes of technology also offer master's and doctorate programs.

Table 1. Four-level revision for senior vocational curriculum standards.

Level	Object	Revision Body
I	Comprehensive framework	Committee organized by the Ministry of Education
II	Trade areas (e.g., business, industry)	Committee organized by curriculum development centers
III	Program types (e.g., accounting, electronics)	Committee organized by curriculum development centers
IV	Course Subjects (e.g., English, introduction to computers)	Representatives invited by program-level committees

Table 2. Framework for revising senior vocational curriculum standards.

	MOE-mandated Course (Required)		School-developed Courses	
			Required	Selective
General Subjects	Comprehensive Minimum Domestic Languages (16) Foreign Languages (8) Mathematics (4) Social Studies (10) Natural Sciences (4) Arts (4) Life (6)	Program-specified To be specified by program committee		
	52 credits	13-29 credits **65-81 credits (40-50%)**		
			8-24 credits (5-15%)	16-32 credits (10-20%)
			24-56 credits (15-35%)	
Technical & Practice Subjects	**41-57 credits (25-35%)**			
Total (Minimum Required for Graduation)	**162 credits (100%)**			

Notes: 1. Subtotal of credits of MOE-mandated courses (including general subjects and technical & practice subjects), school-developed courses, and total number of credits required for graduation are typed in **boldface**.

2. School-developed courses may include general subjects and technical & practice subjects.

Table 2. Proportion of each course category in the minimum number of credits required for graduation from junior colleges.

Program	Graduation Requirement	Course Category			
		Common	Fundamental	Core	School-developed
Five-year	220 credits (100%)	68 credits (30.9%)	20 credits (9.1%)	52 credits (23.6%)	80 credits (36.4%)
Two-year	80 credits (100%)	20 credits (25%)	6 credits (7.5%)	24 credits (30%)	30 credits (37.5%)

Note: School-developed courses may include all course categories.

中華民國台灣地區的技職課程標準

李隆盛*・黃政傑**

國立台灣師範大學・工業科技教育系*　教育系**

台北・台灣

摘要

中華民國台灣地區（以下簡稱台灣）高職和專校的課程標準係由教育部每十年左右修訂和公布一次，至於技術學院的課程則主要是學校自訂。本文根據文獻探討和作者的看法，描述和評論台灣技術及職業教育（以下簡稱技職教育，含高職、專校及技術學院）的課程標準及其發展。側重高職和專校部份，本文先說明技職課程的發展制度和結構，然後指陳確保台灣技職課程及其發展程序適切合宜的努力方向有五：(1)在課程標準修訂之前要先完成重要的探究或規劃程序，(2)需確認學生表現標準以導引課程之發展，(3)應設定規準和進行評鑑以提高課程發展的效能，(4)有必要透過教學計畫的要求落實學校本位課程，和(5)有必要加強業界的參與和強化學生在工作職場中的學習。

技職課程發展制度

台灣的技職院校包含高職、專校和技術（護理）學院三級（見圖１）。三級院校的目標依序在培育基層、中級和高級技術人才。

課程是某一專精領域中各種正式科目和非正式活動的組合，課程是技職教育的核心【１】。台灣中小學及專校的課程標準係由教育部每十年左右制／修訂和公布一次。教育部修訂高職和專校課程標準的一般步驟如下：

1. 擬訂課程標準修訂計畫，
2. 組成課程標準修訂委員會—通常包含技職教育行政人員、師資教育人員、學校教師代表和課程專家，
3. 組成課程標準修訂小組，含
   (1)總綱修訂小組—負責起草各類科教學目標、科目及時數等，
   (2)研究設計小組—負責起草修訂原則、課程標準基本架構和修訂模式等。
4. 擬訂各科目教學大綱，

5. 審查與修正，
6. 公布與實施。

上述修訂步驟顯然傾向是由上而下或行政本位的課程發展模式（相對的是由下而上、學校本位或草根式的課程發展模式）。有些專家指陳這種行政導向的模式有下列的缺失或問題：(1)修訂週期太長以致課程難以及時配合科技進展和社會變遷；(2)少有彈性以致學校在實施時難以配合地區和學生需要；(3)罕做需求評估（如就業機會分析、職務分析、類科檢討）等前置的探究或規劃程序，以致有關學生、學校和社區等方面的必要資訊難以掌握；(4)課程標準公布和實施之間的準備時間太短，以致師資、教材和設備等準備不週；和(5)少有追蹤評鑑以了解課程標準之優劣並做及時必要的修正。因此，從時程上看，一次次課程標準的修訂是一種點狀的修訂而非線性的發展。點狀的課程修訂常被批評爲未能將課程發展當作持續的程序（通常含規劃、實施與評鑑）看待。

因此，目前教育部已在四所國立技術（護理）學院及一所國立綜合大學附設了五個技職課程教[illegible]中心。這五個中心在教育部逐年經費支助下，分別負責工業類、商業類、家政和農業類、護理類和海事水產類的課程發展。這些中心雖已陸續完成一些研究專案和綜理目前五大類科的高職課程標準修訂，但主要欠缺必要和充分的專業支援（如少有課程專家參與，少見中心之間的溝通與合作），以致這些中心的效能仍遠低於技職教育人員的期望。

目前，高職課程標準正在修訂中並預期在 1997 年或稍後公布，表 1 所示是其四層次的修訂對象及修訂委員會／代表。

技職課程結構

高職

技職院校每週上課約 39 節，每學期有 18 ～ 20 週。根據現行課程標準，高職課程的結構如下：

1. 必修一般科目—含國文、英文、社會等，佔總學時（ 204 ～ 228 ）的 27 ～ 40 %。
2. 必修專業科目，含：
   (1)基礎科目—如物理、計算機概論，佔總學時的 6 ～ 9 %；
   (2)理論科目；
   (3)實習科目—和前列理論科目合計，佔總學時的 33 ～ 60 %左右。

3.選修科目—佔總學時的4～16％。
4.共同活動—佔總學時的5～6％。

如前所述，高職課程標準正在修訂中且預期在1997年或稍後公布。修訂中的高職課程標準架構如表2所列，此一架構主要特性及其理念如下：

1.透過基本學術能力科目的擴充，反映加強學生基本學術能力的需要。
當前和未來社會上的許多職業愈來愈倚重認知和情意能力。此一趨勢促使技職教育需從傳統職業主義（重在培養學生從事所需能力低、薪酬低的工作）轉化爲新職業主義（重在培養學生從事所需能力高、薪酬高的非專業性工作）或專業主義（重在培養學生從事所需能力高、薪酬高的專業性工作）【3】。此外，許多被假定該在畢業後立即就業的高職和專校學生熱衷於畢業後立即升學。因此，高職課程有必要加強基本學術能力以及工作職場所需的認知和情意能力。

2.透過降低畢業學分要求及減少每學期教學科目數，減輕學生修課負擔。
新的學科知識不斷出現，學校科目因而不斷增添，而使得高職學生受苦於過重的修課時數和瑣碎的科目，例如，目前高職學生需修210學分當量，但五專學生只需修220學分，四技學生只需修128～148學分即可畢業。因此，在新的高職課程標準架構中，畢業要求學分已從現有210左右降低爲162，且每學期教學科目數已從現行10 科以上減少爲10科以內。學生在減輕修課負擔之後，將有彈性根據性向和興趣選課，並集中心力達成精熟學習。

3.透過容許學校設計一部份課程，鼓勵學校發展配合其學生和社區需要的課程。
台灣是一個小島，所以適合有一合理的國定課程。但是近年來，有數個教改團體訴求教育自由化【4，5】。因此，大學校院已被授權設計自己的課程，並減少必修科目和增多選修科目和通識教育。課程自由化的趨勢，促使高職課程標準架構中已保留部份空間（畢業最低要求學分的15～35％）給學校發展自己的課程。這種校訂科目需建構在部定科目的平台上。

上述高職課程標準的改革乍看之下似乎相當樂觀，但能否成功尚言之過早。主要原因有二：(1)前述行政導向課程發展的缺失或問題尚待解決，而能否轉化點狀課程標準修訂爲線性課程發展尚不確定；(2)高職課程遠比高中課程複雜，但高職課程標準修訂的單位成本遠低於高中。

專校

現行專校課程標準，名叫科目表暨教材大綱，是 1993 或 1994 年所公布，並自 1995 學年度施行。根據現行課程標準，專校科目分成下列三類：

1. 共同科目—含語文、社會、數理和藝術四類學群；
2. 專業基礎科目—如經濟學；和
3. 專業核心科目—如財務管理。

五專訂 220 學分爲最低畢業要求，二專則訂 80 學分。各類科目佔最低畢業學分的比例如表 3 所列。

技術學院

技術學院的課程由學校根據其特性自訂。畢業最低學分要求通常是四技 148 學分，二技 72 學分。

確保技職課程及其發展適切合宜的努力方向

根據前述技職課程發展系統及技職課程結構的說明與分析，以下提陳確保技職課程及其發展適切合宜的努力方向：

1. 在課程標準修訂之前要先完成重要的探究或規劃程序。

   技職課程永遠該是社會需要、學生需求和科技進展的反映。由於這些需要、需求和進展不斷變動，所以爲了確保技職課程標準能及時反映這些變動，一些重要的類科探究或規劃程序（如就業機會分析、預期職務分析和目標調整）應在課程標準修訂之前完成或同時進行。

2. 需確認學生表現標準以導引課程之發展。

   幫助學生從學校走進工作職場一直是技職類科的目標。爲了確保技職課程能幫助學生順利就業，所有技職類科的學生表現標準應有所確認並使能落實於各種科目。並可考慮在學科中採教學模組的設計方式各模組統合適切表現目標，以提供學生更能力本位、更有利於隨時可進出和更可調適學習速率的教學。

3. 應設定規準和進行評鑑以提高課程發展的效能。

   技職院校必須提供更好的課程來培育這個國家的人才。爲了經濟、有效和持續地發展技職課程，有必要設定規準和進行評鑑以提高現有課程發展中心的效能，或設置一新的中心來作爲現有附設中心的網絡中心。

4. 有必要透過教學計畫的要求落實學校本位課程。

   目前，高職和專校在施教上常不適切地改變課程標準以求取課程實施的方便性。例如，許多該由學生「選修」的科目被改成是由老師「選開」的科目，

還有許多學校的教學行政管理太自由放任（如偏離課程標準太多）。由於學校／教室／實習場所所實施的課程比課程標準更貼近學生的學習，爲了確保高職和專校的部訂和校訂課程能有效實施，有必要透過學校行政甚至加上主管教育行政機關的審查，要求各學科領域要有教學計畫並據以落實教學。

5. 有必要加強業界的參與和強化學生在工作職場中的學習。

技職課程基本上重實踐，所以課程發展該務實。爲了確保技職類科課程契合其所對應的業界之需要，應加強業界的參與（如參加顧問委員會和建教合作）。此外，學游泳的人該下水學，所以在課程中應強化學生在工作職場的學習經驗以協助學生作好參與式學習而裨益就業發展。

參考文獻

【 1 】 Pucel, D. J., The curriculum, Vocational Education in the 1990s: Major Issues. Chapter 8, pp. 157-172, Prakken, Ann Arbor (1990).

【 2 】黃政傑和李隆盛，高職課程標準修訂方向和共同架構之規劃研究，4 (2)，頁 22-36 (1996)。

【 3 】 Gray, K., Vocationalism and the American high school, Journal of Industrial Teacher Education, 33 (2), pp. 86-92 (1996).

【 4 】 Ministry of Education, Educational Report of the Republic of China on Taiwan: Perceptions of Education towards the Twenty-first Century. Republic of China (1995).

【 5 】 Yung, C. S., Technological and vocational education in Taiwan, R. O. C.: Transformation and development. IVETA '96 International Conference on Vocational Education and Training--Keynote Speeches (1996, May 1-4).

【 6 】 Imel, S., Vocational education performance standards. ERIC Dingest, No. 96 (1995).

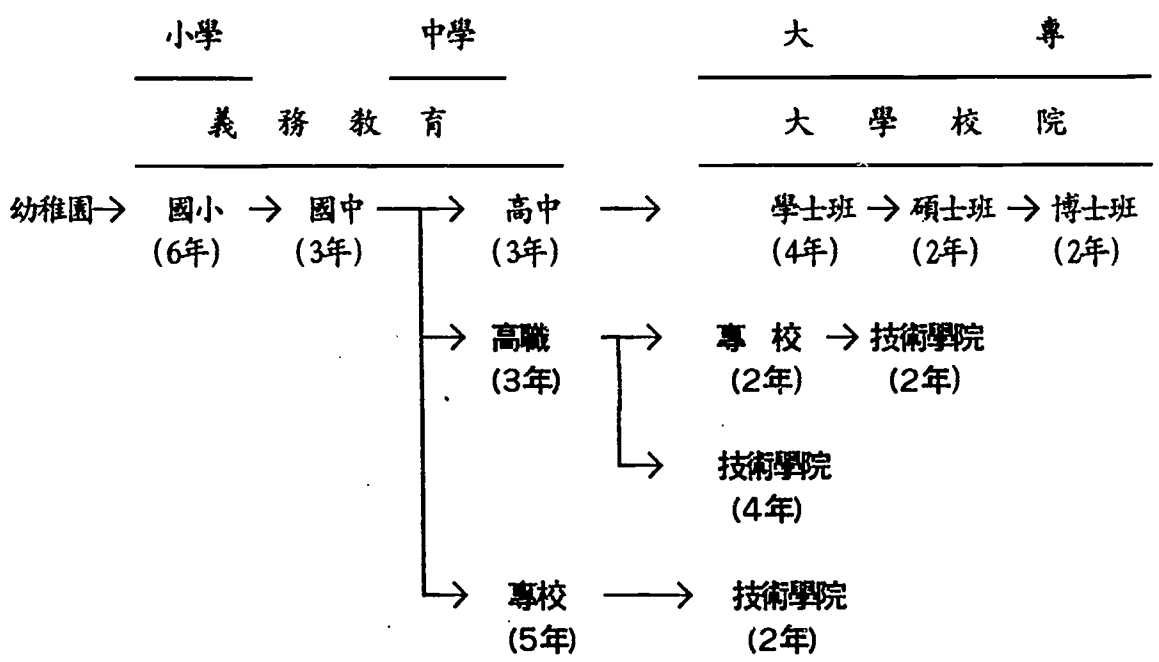

圖 1　台灣技職院校學制

註：1. 圖中技職院校打印成黑體。

2. 1994 學年度，約 380,000 國中畢業生中有 21 %升進高中，45 %升進高職，9 %升進五專，12 %升進高職補校，其餘 13 %。

3. 在大專層級，另有三專，但在近年內將停掉。

4. 某些技術學院開設有碩士班和博士班。

表 1　高職課程標準修訂的四個層級

層級	修 訂 對 象	修 訂 主 體
Ⅰ	共同架構	教育部的委員會
Ⅱ	職類(如商業類、工業類)	課程發展中心的職類委員會
Ⅲ	科別(會計科、電子科)	課程發展中心的科別委員會
Ⅳ	科目(如英文、計算機概論)	各科別委員會聘的代表

表 2　修訂中高職課程標準的共同架構

	部訂科目（必修）		校訂科目 必修	校訂科目 選修
一般科目	共同最低要求 本國語文(6) 外國語文(8) 數學(4) 社會(10) 自然(4) 藝術(4) 生活(6) 52學分	各科別自訂 由各科別委員會訂定 13-29學分		
	65-81學分(40-50%)			
			8-24學分 (5-15%)	16-32學分 (10-20%)
			24-56學分 (15-35%)	
專業及實習科目	41-57學分(25-35%)			
合計（最低畢業要求）	162學分(100%)			

註：1.表中部訂科目（含一般和專業及實習科目）、校訂科目學分數之小計，及畢業最低要求學分總數打印成黑體。

2.校訂科目可跨一般科目和專業及實習科目。

表 3　專校各科目別在畢業最低要求學分中的比重

年　制	畢業要求	科目別			
		共　同	基　礎	核　心	校　訂
五年制	220學分 (100%)	68學分 (30.9%)	20學分 (9.1%)	52學分 (23.6%)	80學分 (36.4%)
二年制	80學分 (100%)	20學分 (25%)	6學分 (7.5%)	24學分 (30%)	30學分 (37.5%)

註：校訂科目可跨各種科目別。