

DESIGNING AND DEVELOPING VET CURRICULA OF TWO YEAR COLLEGES FOR TURKISH AND GLOBAL INDUSTRY, A CASE STUDY IN TURKEY

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Abstract - *The rapid development in technology, the globalization of market and improvement in communication have affected the national economies and education system of countries. New challenges and new demands are making necessary to redesign curriculums of VET programs with partnership industry and business sectors for global economy. A case study about the redesign and improvement two year colleges' programmes as a pilot project with partnership of industry and colleges will be presented in Turkey. There are 409 two year colleges in Turkey and total number of diploma programs is 234 and 217 800 students attend two year colleges in 2001. It was used 200 million USD, World Bank credit to develop 31 colleges between 1984 and 1997. In 1996, 21 technical programmes were renewed to meet the needs of Turkish Industry and global market after YOK (Turkish Higher Education Council) and World Bank project to continue to develop quality of two year colleges in order to meet the needs of the Turkish Industry. Istanbul Chamber of Industry (ISOV) and Turkish Higher Education Council (YOK) was signed agreement protocol on February 27, 1997. It can be seen some YOK-ISOV agreement activities on www.isov.org.tr. Which is official web page of this partnership. Curriculums development is only one activity of this co-operation it is planned to utilized experiences of developed countries. The aim of this article is to present curriculum development and renewing Two Year Colleges' studies in Turkey. The third phase of YOK-World Bank project will start at the beginning of the 2002.*

One of the aims of this project will be curriculum development of some programmes.

Index Terms - Curriculums, Two Year Colleges, Industry, Partnership, Renewing, Developing.

INTRODUCTION AND BACKGROUND INFORMATION ABOUT TURKEY

Some background information about the Republic of Turkey (Türkiye) helps to understand the curriculums development project of two year colleges which was realized in Turkey.

Turkey is bridge between Europe and Asia and has a strong desire to improve its ability to compete internationally and to gain full membership in the European Union (EU).

Turkey shares land borders with Georgia, Iran, Iraq, Syria, Greece, Armenia and Bulgaria.

The Turkish Republic is based on a secular democratic pluralistic and parliamentary system. Nation is governed by the Council of Ministers headed by the Prime Minister.

According to 2001 census, Turkey has approximately 67 million inhabitants making it second populated country in Europe and the 15th biggest country in the world. Approximately 70% of the population is under the age of 35. 15 million young people are students from primary school to university (including). Employment people rate is 17% in industry, 42% in agriculture, 41% in service sector. Total labor force reached 22 681 000, unemployment rate is %7 in 2001.

There are 73 universities (53 state, 20 foundation universities) 586 faculties, 277 institutes, 216 four year colleges, 409 two year colleges in 2000-2001 academic year. Turkish Higher Education Council is responsible for coordination and implementation of higher education.

The number of students attending universities and other higher education institution is 1 491 806 (42 % female) in 2001 year. There are 234 programmes, 217 800 students attend to 409 two year colleges.

Approximately 1 million students are waiting to attend the university and colleges for each year because of the limited capacity of the universities.

YOK-World Bank Industrial Education Projects and The Results of the Projects

Turkish government and Turkish industry give importance to develop two year colleges. In 1984 a project funded by World Bank under direction of the Higher Education Council (YOK) was established to develop Higher Technician (Tekniker) training at 8 two year colleges through Turkey and a further 23 two year colleges were added in 1988 with second phase of the project[7].

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The main aim of the YOK-World Bank Industrial Education projects was to develop selected 31 Two Year Colleges and the curriculum of 21 programmes.

In the first phase of project started in 1984 and finished 1989 and followed by the second phase and it finished in 1997.

The first phase of project comprised 8 Two Year Colleges second phase comprised 23 Two Year Colleges in the different part of Turkey.

1. Among the approximately 409 Two Year Colleges, 31 of them had quite well equipment's, conditions, curriculums, and very good educated staff.
2. The curriculums of 21 programmes have been prepared and developed by the Turkish, English and American experts to meet the needs of the Turkish and global industries.

This process continues 5 years duration.

3. Project Two Year Colleges had got opportunity to have cooperation with some the chambers of trade and industry (Istanbul, Ankara, Izmir, Gaziantep, Mersin, Bursa, Balýkesir, Adana) which represents about %80 of Turkish industry.
4. The project Two Year Colleges are providing help to other Two Year Colleges to develop their curriculums and educating their academic staff.
5. Third phase of the YOK-World Bank Industrial Education project will start of the beginning of the 2002. It will cost 15-20 million USD and the aim of new project will be curriculum development, academic staff education, continuous education to all the people in Turkey.

No educational system is more important to the economic development of a country than higher technician education, and yet it so disparate and poorly planned and managed in our contemporary world.

Misconceptions about ends and means, products and processes and producer-user relationship are widely shared that higher technician education in many countries is still in search of and identity.

In the globalized world of the 21st century higher technician education will play critical role. However, to play that role effectively the relevance and quality assurance of higher technician education is of utmost importance [1].

The involvement of industry in the process of higher technician education is particularly important to enhance its relevance and quality assurance of the curriculums of two year colleges. The trend towards a global village with a single economy will put pressure on all countries to redesign

their education and training systems in order to produce a world class adaptive workforce.

What then will characterise a quality technical and vocational curriculum likely to achieve these ends? According to Arvil Adams, Human Resource Adviser to the World Bank emphasis should be laid on establishing a foundation of basic skills of numeracy, literacy, communication and problem solving together with some basic ideas of science and technology. But there are other issues to be addressed within a curriculum for global workforce e.g.

1. A capacity for working with other,
2. Cultural implications of changes arising from advances in science and technology,
3. How quality of life may be enhanced through sport and recreation and by exposure to the arts,
4. Understanding and emphasizing with people especially across different cultures.

In addition to these general factors however there is, of paramount importance, a requirement for specialised provision which relates to specific occupations.

The development of curriculums should stressed the need for flexibility in structure and modes of delivery of Two Year Colleges' programmes. In exactly the same time frame technical/vocational education in the USA has seen the introduction and almost exponential growth of "Technical Preparation" programmes. This new "applied academics" curriculum is aimed at the two mid quartiles of the upper secondary school population. Leaders in the Tech-prep movement Dan Hull, Leno Pedrotti, Dale Parnell et al shared a concern that the traditional American upper school curriculum had on over academic focus and was aimed mainly at preparing an appropriate curriculum for the majority who would not aspire to go to university. They believed a curriculum was required which would not only provide a rounded education through English, social subjects, arts and humanities but, by giving prominence to applied mathematics, applied technology and applied science, would provide a basic grounding which would be welcomed as more relevant than pure academic studies by many employers [2,3].

HIGHER TECHNICIAN CURRICULUM DEVELOPMENT PROCESS

Higher technician curriculum must give clear directions in respect of:

- What the aims and objectives of the technical education system should precisely be
- What kind of educational experiences should be provided to achieve the aims and objectives

- How these educational experiences could be effectively organised
- How the achievement of the aims and objectives could be determined.

The curriculum must therefore be viewed as one of systematically making decisions about the objectives of the educational programmes, content, organization and methods, and evaluation of the programme outcomes. These decisions will guide and direct the activities of all those who are engaged in the educational enterprise Patil (CPSC 80/113) suggest that curriculum should have the following characteristics[6]:

- It should be relevant to a country's needs
- It should be feasible for the working environment
- It should adequately communicate the intents and purposes
- It should guide planning strategies for implementation
- It should be capable of being used as a basis for improvement.

In order to adequately serve these purposes it must be established systematic approach to curriculum design and subsequent development into an operational form. It also evident that the process must be necessarily start with a sure understanding of what kinds and types of higher technicians are needed. What their functions and activities are in different sectors of country's national economy, and what abilities they should possess.

There are three parallel activities which need to be followed during the process of reviewing the curriculum.

Technology Updating

Technology updating needs to take place as it occurs and instructors need to be continually vigilant to ensure that material they deliver to the students is state-of-the art technology and is not something that can be put off to next major review.

Assessment Strategy

The overall structure of the examination methods used to assess the higher technician qualification needs to be reviewed to ensure that the standard of the qualification meets accepted national standards and maintains international validity.

Management Structure for Quality Control

There is need to review the management system and committee structure within the colleges to ensure that all

parties involved in the learning process are partners in decision making processes and are participants in maintaining high standards of education.

Action Plan

The process of curriculum development and renewing had to be completed in time for its implementation at the start of academic year. This would give time for staff development for instructors to take place related to the changes to the curriculum.

Components of the Curriculum Development Process

These components are as below.

- Methods for Generating a Data Base
- Teaching Methods
- Assessment Methods
- Links With Industry

CORE CURRICULUM

A cluster of technician occupations increase in a technology cally advancing setting, the variety of higher technician courses to increase and as a sequel, the concept of the curriculum becomes relevant in current educational practice, core curriculum has diverse meanings, as for example

Correlation of Subject

To modify the rigid and highly isolated pattern of subject centered curriculum, and to show some interrelation between certain subjects e.g. correlating mathematics to science and engineering or physics

Fusion of Subjects

An effort to interrelate subjects or to merge two or three subjects by combining the content of these subjects into one, centered round the use of problems as the unifying or fusing agent. E.g. fusion of physics and chemistry into a single course made up of problems illustrative of the principles in both.

Broad Fields

An expanded form of the idea of fusion to recombine many subjects into one broad course or enlarged pattern of subjects content grouping e.g. bringing together the content of physics, chemistry etc.

Unified Studies

An opportunity or spring board for the realisation of improved citizenship by helping all youth grow in such areas as civic understanding and competence, understanding of the

operation of economic and social systems and of the human relations involved there in family relationships, appreciation of beauty and soon.

A CASE STUDY TO DEVELOP TWO YEAR COLLEGES' CURRICULUM

Curriculums for 21 programmes were prepared at that time and these programmes were introduced to two year colleges (TYC) over period of years. Under the same project workshop and laboratory equipment was provided to support these programmes technical education has to evaluate constantly the programmes they offer in order to keep abreast with rapid technological changes that take place in the industries that they serve and to offer the highest quality of education to their students in 1996 after 10 years of operation, it was apparent that some of these curriculums required revision. It was decided to establish a model for curriculum development, monitoring, evaluation and renewal using 7 selected programmes as a pilot application[8].

The three main objective of the developing selected two year colleges' curriculums were;

- to establish a core group of “lead” instructors to work closely with the Industrial Training Unit (ITU) to design and document a system of curriculum development and renewing
- to provide training designed to equip one “lead” instructor from each major curriculum area with the knowledge and skills to carry out the tasks related to curriculum development and renewing.
- To provide ITU-linked leadership in relation to instructor training, operational introduction of the revised curriculum and a device a management systems to ensure curriculum development of sustainability.

Setting Up The Operational Structure

A core group of 9 members was established consisting of TYC principals, vice principals, heads of departments, programme co-ordinators and instructors.

Programme working groups were established in each programme area under review members were selected from a wide range of TYC after consultation with TYC principals. Their function was to analyze data and carry out the main tasks. These task were to review the technical content of the curriculum, sort out anomalies, rationalize the structure and eliminate unnecessary materials.

Selected 21 programmes have been renewed by instructors and industrialists. The process was operated by

core group with an executive function and programme working groups who carried out the main task. A database was established by means of questionnaires sent to all parties involved in the teaching programmes, instructors, industrialist, current students and graduated students.

The analysis of the data is carried out by working groups who prepared the first draft of the new curriculum for each programme.

Finally, the care groups organized seminars for the programme co-ordinators to ensure the successful implementation of the renewed curriculum in 1996. The curriculum of these programmes were renewed by the instructors at college level.

CONCLUSION AND RECOMMENDATION FOR FUTURE

YOK-World Bank Industrial education Project has been completed at the end of the 1997. Following the this project to be continued the development of curriculum and relationship between Turkish industry and project colleges an agreement protocol was signed in February 1997 by the Turkish Higher Education Council (YOK) and the Foundation of İstanbul Chamber of Industry (ISOV). The objective was to form a functional structure between two parties in order to train qualified higher technicians for planned economic development of Turkiye [9].

The structure of the YOK and ISOV relationship centers around three boards (general, executive and advisory) and working groups at college or city level. The general and executive boards were formed at national level, advisory and working group were formed at college or city level. General board is composed of nine appointed a members, consisting of one member each YOK, ISOV, Association of Industry and Commerce Chambers, Ministry of Industry and Commerce, Ministry of Labor and Social Security and two members each representing the labor unions and two-year colleges [9].

The executive board, also formed at national level, is responsible for implementing decisions made by the general board. The executive board is composed of seven elected members like general boards.

Local advisory boards are similar in organization to the executive board. The working group consists of five members from two year college industry, central government, labor union, representative of ministry of national education at city or college level.

The main duty of these working groups are to develop the curriculum programmes and submit the proposals advisory board of Two Year College and executive board of YOK-ISOV co-operation.

Advisory boards were formed in 63 cities. These boards meet quarterly and forward copies of the minutes of their meeting to Executive Board of YOK- ISOV Co-operation.

Executive board members visited the chamber of industry and trade Adana, Mersin, Gaziantep, Antalya and Bursa within the last two years and were informed them projects purpose, explained the benefits and requested their co-operation and also an internet network (ISOV-NET) was developed to provide information rapidly to project participants. Many industrial organizations and two year colleges also developed web sites to share labor needs and student credentials. Information provided by industry is being used to plan and develop programs and curriculum. In addition detailed information about college programmes curriculum, project colleges, YOK-World Bank Projects is included in the ISOV-NET data base web address is www.isov.org.tr.

Technical and vocational education is the component of education most directly concerned with acquisition of knowledge and skills required by workers in business, manufacturing and service industries, as well as the trades. For this reason, technical and vocational education must be planed in a learning culture that is shared by individuals, industry, different economic sectors, and governments. Rapid and continuos scientific and technological advancement require flexibility on the curriculums and programmes to meet workplaces in according the changing factors of economy and technology. It is always difficult to situation of technical education in this millennium and those who have tried this is in the past have nearly always got it wrong. Technology will continue to advance at a rapid pace and it is therefore important to have in place systems that can cope with rapid change. YOK-ISOV agreement protocol aimed will provide sustainability of the process of curriculum development and renewing in the future. If it is activated by the stakeholders of agreement protocol.

It was formed the curriculum development structure at national, city, Two Year colleges levels by YOK-World Bank agreement protocol in 1997. The main duty of working group is to design and renew the curriculum of programmes and working groups submit their reports to advisory boards and advisory boards submit to executive board and finally executive board evaluates the submitted reports and collects the experts from industry, trade and service sectors and Two Years Colleges for each programme (mechanical, electronic, civil engineering, tourism, etc.). Curriculum programmes can be renewed or developed the needs of industry, trade and service sectors in this way. This process should be continued 3 or 5 years periods. Proposed Curriculum Development Process is shown in diagram 1.

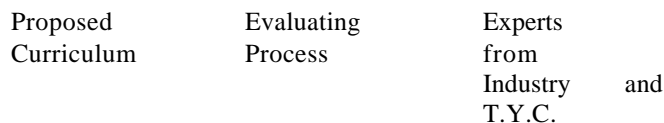
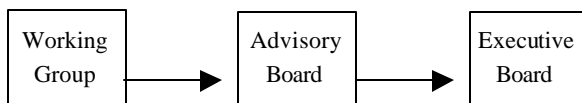


Diagram 1: Proposed Curriculum Development Process

It must be renewed the curriculums of Two Year Colleges the period of 3 or 5 years in according the development and changing in Turkish and global economy. The basic structure has been completed to develop curriculums between two years colleges, industry, higher education council and government. In the near future. These structure must be operated efficiently and effectively to develop and renew the present curriculums of Two Year Colleges and the new programmes.

Third phase of the YOK-World Bank project will start at the beginning of the 2002.

One of the main aims of the project will be curriculum development of some selected programmes.

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APPENDIX- 1

**YÖK (Higher Education Council of TURKEY)-WORLD BANK INDUSTRIAL EDUCATION PROJECT
COLLEGES AND PROGRAMMES
(1984-1997)**

TWO YEAR COLLEGES	DIPLOMA PROGRAMMES
Çankýry College Düzce College Ýskenderun College Ýstanbul Tech. Science College Ýzmir College Kýrykkale College Konya Tech. Science College Kýrykkale College Malatya College Antalya Social Science College Antalya Tech. Science College Alaply College Amasya College Balýkesir College Batman College Bilecik College Bursa College Ege College Erzincan College Fýrat Tech. Science College Gaziantep College Kahramanmara ^o College Kayseri College Kocaeli College Mersin College Ordu College Osmaniye College Rize College Panlyurfa College Sivas College Tekirdađ College	Electrical Engineering Technology Industrial Electronics Telecommunications Technology Control and Instrumentation Mechanical Engineering Technology Otomotive Technology Air Condition. & Reprigeration Agricultural Mach. Technology Administrative Studies Office Administration Foundry Technology Civil Engineering Technology Petrochemical Technology Chemical Technology Bio Medical Technology Textile Technology Tourism Food and Catering Technology Commercial Studies Financial Administration Food Technology
31 Colleges	21 Programmes