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## KNOWLEDGE, SKILLS AND CREATIVITY IN VOCATIONAL AND TECHNICAL EDUCATION

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### Abstract

The need for qualified human resources are getting increased by the rapid development in science and technology and by global transformation of production and consumption relationships. In this context the well-educated human resources who can reach ,use and improve the knowledge effect the countries' economic and technical improvement and their socio-cultural structures as well.

Today's information society needs individuals with creativity and communicational skills as well as contemporary knowledge, perfection in practice, effectiveness in economy by transforming knowledge to product or service. This can be formulated in education as: individual and social competence ,vocational and technical competence, leadership and management competence...To reach this aim in education , scientific data based educational programmes, practical application fields, and also social, sporty , artistic activities and mediums for free time sharing are all demanded.

The role and importance of vocational and technical education stands out as in the structure of educational system based on knowledge, skills and creativity concerned with the relations of progressing, employing and competition. This study aims to emphasise this point, and discuss the problems and solutions in this context.

The framework of the study has the following subjects:.

- 1)The role of the vocational and technical education in Turkish education system
- 2)The problems in the educational programmes in Vocational Schools, evaluations on their content, methods and outcomes.
- 3) Sampling: Uludağ University Vocational School of Technical Sciences is put forward (presented) as an example via the projects, activities and applications has been done in/by the school. Uludağ University Vocational School of Technical Sciences has 9 departments, 15 programmes, more than 3000 students and 69 members of academics and lecturers . The school educating technicians is very effective in Bursa and its district as supplying staff member for the work environment in the region. It is a model for the other vocational schools with its double diploma , lifelong learning programmes and quality processes. Last 5 year applications and activities of the U.Uni. V.S.T.C. are presented as in the following topics:

-Co-operative projects with industry (training courses, apprenticeship applications, employments, partnerships in the projects)

-International education programmes (1+1 double diploma, Erasmus exchange and mobility programmes for students and lecturers)

-supporting the students to participate in academic and social activities (to parttake in congresses, symposiums, exhibitions, contests projects and social, sporty, artistic activities)

- 4)The Targets and Proposals on future of the vocational education

Vocational schools training technicians who are very important for the structural frame of the working World are evaluated in this study with their structure, educational programmes and relations with the labour market. In this context Uludağ Uni. Vocational School of Technical Sciences is presented as a good model with its training programmes, cooperative projects with industry, social activities and international attempts for qualified education.

As a result, the basic emphasise is the importance and role of the institutions of vocational and technical education. Increasing the quality and transparency, achieving the international competence conditions in the schools are aimed. Not only theoretical knowledge, but practical applications are urgent for the vocational skills and experiences so, the hardware facilities, spatial and academic structure should be improved and the relations and cooperations with the industry should be strengthened.

Moreover than vocational knowledge and skills, the interests on art and culture are required. Educating programmes targets on the members who are solving problems, proposing creative alternative solutions, constructing social relationships, communicating effectively, besides conscious about responsibilities and capacities and coping with the competition in global labour milieu. So the education programmes supported by the social activities, projects, contests, seminars, and presentations effect the social developments of the students, feed their creativity, productivity and make difference within their working lives.

**Key Words:** Vocational education, information society, creativity

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## **Introduction**

Communities, head towards to new needs, goals and strategies depending on today's rapidly changing, and transforming technological, political, socio-cultural, and economic structures

Related with the recent developments in science and technology, qualified labor power in vocational and technical fields get more important who gets, uses and develops knowledge and skills of modern technology. Vocational and technical education has critical importance for progress, employment and for the high competitiveness of a country. Vocational and technical training is becoming primary target in this context, which is based on cooperation with industrial and business sectors and supported by the every part of society.

### **1.Importance And Role Of Vocational Technical Education**

Vocational and technical education is an effective tool to improve the potential and productivity of the individuals who face with the global problems like competition, specialisation and employment. For sustainable development institutions of vocational and technical training should be developed, supported by the industrial world and it is essential to increase their quality in the light of international criterias.

The vocational and technical education with two dimensional process within school and industry, prepares and integrates the young people to the working life, and helps them to produce value by working. Vocational training supplies the needed human power with skills and knowledge to labor market; motivates the economic recovery and influences the social transformation as well. (Saygılı, Cihan, Yavan, 2006).

The vocational training has been differently defined according to the changes and developments in time. Firstly it is defined as a kind of training for working, for hand skills and for producing. Recent wide definition is "the form of education aims to improve the capacity of knowledge, skills and behaviour for efficient activity in the chosen working field."

Vocational and technical education has three main elements -related with the economic, social and cultural changes- as individual, business and training process. This means that one gains professional knowledge, skills and praxis within the vocational training which is also the physically, intellectually, emotionally, socially and economically development process.

The technical and vocational education should be updated according to the employment needs while adapting to the changing socio-economic conditions and demands of the market. Vocational training is a way of learning based on praxis at work. (Alkan, Doğan, Sezgin 1976). As Doğan(1983) said it is both theoretical and workshop education to earn the students basic capabilities of the work.

The structure of the efficiency of needed qualified labor power at working place starts by staff, and continues as master, technician and engineer. (figure 1) The technician has an efficient position like a bridge between the master and the engineer. So the complementary role of the vocational education for the working life is undeniable with its theoretical technical structure and practical application skills.

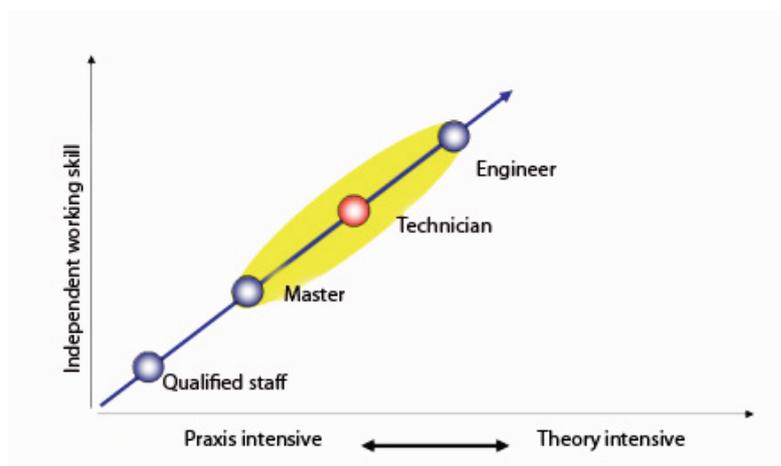


Figure:1 Structure of the efficiency of needed qualified labor-power at work-place (Karcı, H.)

Vocational education has the important economic and social role. The social, economic and cultural needs of the human-power in the working life should be met by the individual-focused attitudes. Because not only economically, but socially development is necessary for the country's progress. so it is needed the economically aimed but individual-focused policies to prioritize the socio-cultural improvement of the individuals within the education system.

The individual, social and economic benefits of vocational education with related its contribution to the country's economic and social progress can be summarized like these:

*Individual benefit: An identity related with the profession is earned by this education. Besides he/she earns money by working and gains economic assurance. He/she gains responsibilities, sensations, social and intellectual proprieties and experiences by the education. And working individual who feels efficient and useful in the community be self-confident, successful and respected in social life. (Mays,1957).*

The social benefit : It is related with the structure of the education based on creativity, efficiency and quality for democratic life, piece and modernity in the country. The education aiming to train more conscious and intellectual individuals affects the forming values like democracy, participancy, human rights, and social harmony in the community. (Şimşek, 1999)

Economic benefit: Vocational education acts to form, to improve and to rule the process of workers efficiency, preserving the innovations and patents while training the efficient and visionary individuals for working life. (Alkan, Doğan ve Sezgin, 1976)

The vocational education increasing quality of workers and the work, means the rapid and efficient production, and the much growth in the country's economy. In other words, qualified labor power and improvement in professional fields results in countries progress. (Anapa, 2008).

### 1.1. Vocational Education in Information Society

By increasing the communication In the first half of the 21st century, social and economic structure changed related with the transforming into the information society. To understand this transformation it is necessary to look at the characteristics of the industrial society and information society together as seen at the table below:

Table 1: The comparative analyses of second and third wave economies

<b>DYNAMICS</b>	<b>SECOND WAVE (INDUSTRIAL SOCIETY)</b>	<b>THIRD WAVE (INFORMATION SOCIETY)</b>
The elements of production	Land-labor-capital	Knowledge(-data-image-culture-ideology-value)
Assets	Based on material assets	Based on intangible assets
Production and structure of the product	Mass production	Flexible technology and individualism on product flexibility
Structure of labor	Work by Pschycal power, (full time, repeating mechanical working at factories)	Work by knowledge (creative, half time working at home)
Innovation	Rarely	Contiunal
Scale	Large scale (scale economy)	small scale, appropriate scale
Organization	Vertical, hard, burocratic, long-term	change engineering: (activity based, network organizations, flexible, anti-burocratic)
Infrastructure	importance on transportation (otobans,streets,ports)	importance on communication (electronic Networks)

Ref: İ.M. Baş, “Dalgalarla Gelen Gelecek Kurgu bilimci Guru: Alvin Tofler”,AD Business Notebook, 1998, p.28

As seen at the table, Dynamics based on production and material assets transform into knowledge, image, culture and value in the information society. The economy of the information society is based on the flexible technology, creative work, continual innovation and requires appropriate scale and communicative infrastructure.

The most attractive characteristic of the new human-power of post-industrial society is related with the education level. It means that information society requires high level educated human-resource. The importance given to the broaded and specified education is the result of advance of modern technology. The organization of the qualified and low-qualified workers was the character of the industrial society and similarly vocational and technical education and organization is the main target and character of the information society. (Dura,1990:71-78).

In the discussions on the vocational and technological training, the concept of total competence has been raised. Total competence is the sum of individual, social competence, vocational and technical competence and the competence of leadership and management.



Figure 2: The Scheme of competences (Karcı, 2008)

These components are very important for the country's culture and "vocational and technical competence" is only one part of it. Besides "Individual and social competence", "leadership and management competence" should be gained also within the education to reach the total competence and to increase the individual's adding value to the society. In this sense as pointed by the international standards, vocational education should be qualified and enriched with multidimensional structure .

## **1.2. The Technical and Vocational Education in International Education Policies**

The international actors like World Bank, European Union has got the role in determining the aim and context of the technical and vocational education. And developing countries are in the process to be adapted to the imposed policies of the international actors about the vocational education systems.

European Union predicts some transformations in the vocational education for both the economic and social integration. Common policies aim to increase the employment and competition , accordance to the technological change and free movement of labour power. So, the vocational education has to be formed as a system to train the labor power for dynamic, competitive, knowledge based economy related with the common policies and standards of the EU .

Turkey as a candidate member of EU starts some new applications in the vocational and technical education. The institutional, and legal process about changes, plans and projects are the results of the EU policies about vocational education in Turkey .This continuous and broadening adaptation process is also for modernization and enrichment of the vocational and technical education system. (Anapa, 2008)

The European Union 's policies to standardize the countries' vocational education systems are based on some factors

### *To Increase Employment:*

As Sezgin(2001) points out, unemployment is the main factor . This problem can be solved by the vocational education if capabilities of individuals can be improved according to the markets demands. The

harmony between work and individual and possibilities of employment can be increased by vocational education effectively by cooperating with the industrial sectors.

*Changes in Science and Technology:* Information societies require some new capabilities and skills about technology so the vocational education system should response these contextual and methodological requirements by up to date plannings.

*To Increase Competitive Power:* Education is the effective tool for international competition. Upgrading and increasing qualifications in vocational education to response the demands of labour market provides the competitive power in international industrial business area.

*Free Movement of Labor Power:* Related with the EU policies, a frame of qualifications about technical and vocational education is determined to make free movement of labor possible and response the demands of labor market of EU.

So it is envisioned that the evaluations and improvement of vocational education system should be necessary to acquire the outcomes of employment, competitiveness, adaptation to the technological changes and free labor movement. (Sezgin 2001)

In this sense, common aims, strategies and tools (ECTS, Europass, LDV, etc. ) are planned in the frame of EU policies for mobility of students and teachers, to share the facilities, experiences, ideas, results in the mutual learning process.

## 2. Sampling: Uludağ University Vocational School Of Technical Sciences

Uludağ University vocational school of technical sciences was founded in 1986 giving associate degree with two-year education. The distinguished school with 3000 students in 16 programmes have modern labs and buildings and dynamic academic staff. It is in the country's much intensive industrial town Bursa, and acts an important role by technical consultancy and certification courses for the industrial firms in the town.

The school has national quality certifications and serve as the International edexcel competence center. Vocational school of technical sciences takes part in the accreditation process lasting at the Uludağ University. The school also applies for ECTS (European credit transfer system) and international diploma; studies at The Institutional Evaluation Programme (IEP) of the The European Universities Association.

The school has been developed in 25 years and become one of the main institutions of vocational education and it can be a model for the underlined targets and strategies above.

### 2.1. Datas about the projects between the years 2007-2012 at Uludağ University Vocational School of technical sciences

2007-2012	Number	Participing people	Budget
Sertification Courses	75	1537	
LLP Projects	4	53	93740£
Scientific Research Projects	6		40000£

Technical visits, exhibitions, displays	9		
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Table 2: Datas about School activities between 2007-2012

Sertification courses: 75 sertification courses organized by 5 different programmes with 1537 participants.

LLP Projects : Four EU Lifelong learning projects by 53 students and teachers with foreign partners from 5different countries with the budget of totally 93740 Euros.

Scientisfic research projects: Six projects in last 5 years with the budget of 40000 Euros in total.

152 Technical visits, 9 exhibitions, presentations of projects have been realized in 5 yeras between 2007-2012

Double diploma programmes: In accordance with the protocole of Double diploma application with our school and the City College Brighton & Hove and Thames Gateway College, the students group went to England to have second class' eduaction and will take diplomas of two instituitons at the same time.

### **3. CONCLUSION:**

Vocational and technical education has an important role for the developing counties with growing economy. For our socieity, a vision of vocational education based on the inernational targets and standarts is necessary. It should aim the total competences, and fed by the global communicational medias of information socieity. In this context, the indicators pointed out by OECD are important to see the problems and to determine the targets and strategies about vocational education:

- schooling rate
- competences of individuals
- Innovation

The policies aiming to provide these indicators are getting important because adaptation is urgent to new technologies, new production and management forms, new consumptional patterns. So newly required professions, skills, knowledge and capabilities make the vocational education is more valuable.

The government studies on some projects and workshops in this context so that the vocational education can improve with flexible, dynamic and upgraded vision and structure. Some targets and proposals in this frame can be summarized as:

- Advising students for vocational education,
- Renewal of the content of the courses according to the Professional standarts and sectorel demands
- To consider education policies for required labor power , professional qualifications and standarts
- Both theoretical and practical education; Cooperation with the sector by training courses at work, the concept of win and win

-To identify the international qualifications, to have accredited educational institutions

-To support the guidance and consultancy in common frame to reach, to share and to transfer the international knowledge and skills

To make the educational programmes transparent and dynamic with their methods and outcomes, so so as to follow, compare and improve.

-To upgrade the structures, terms, tools and methods, besides Professional needs and possibilities as well.

-To motivate the academic staff by supporting, favouring their performances

-To acquire the standards of technical and physical hardware and social , sporty spaces necessary for modern education by both government's and sector's support .

-To encourage the society for the vocational education by displaying the role of blue-collar workers for the country's development.

-To organize artistic, social, sporty activities to improve the students'creativity within the educational process.

The vocational and technical schools have important role for the country's economy. The evaluations and proposals via the sampling of Uludağ University VSTS show the requirements of education based on knowledge, skill and creativity for the relationship of progress, employment and competition.

Educating programmes targets on the individuals who are solving problems, proposing creative alternative solutions, constructing social relationships, communicating effectively , besides conscious about responsibilities and capacities and coping with the competition in global labour milieu. So the the education programmes supported by the social activities, projects, contests, seminars, and presentations effect the social developments of the students, feed their creativity, productivity and make difference within their working lives.

The vocational and technical schools have transforming effect in this sense, on the economic and social life of the country, with increasing quality, physical and academic standards , cooperational structure with industrial business sectors as targeted in the international frame.

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