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ABSTRACT

A study assessed the effectiveness and efficiency of the curriculum development process in local vocational schools in Turkey. The study design included 14 vocational high schools and 12 companies that hired graduates of these schools in 4 relatively large and developed cities. Three data collection methods were used: interviews with principals, school-industry coordinators, teachers, senior students, industry managers, and workers; observations in classrooms and workshops; and document analysis. Results indicated that the standardized curriculum in vocational education did not meet the needs of students and industry. The curriculum was outdated compared to new competencies required by industry. Only a few vocational schools were able to keep up with rapid changes in the competencies required of their students through a systematic needs assessment and curriculum development efforts. The needs assessment process worked well in some schools but not in others. The main reasons for not doing needs assessments were the heavy teaching and supervising loads, inadequate financial resources and rewards, lack of leadership and communication with industry, and the passive mood of teachers. The centralized nature of the educational system appeared to be a major obstacle to curriculum development efforts in vocational schools. Approval of curriculum was long and cumbersome and not responsive to the rapid changes in industry. (Contains 10 references.) (YLB)

DRAFT

A QUALITATIVE ASSESSMENT OF CURRICULUM DEVELOPMENT PROCESS AT SECONDARY VOCATIONAL SCHOOLS IN TURKEY

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Introduction

This study is part of a large project designed to investigate the current status of vocational education at secondary school level from various perspectives including curriculum, administration, school-industry relations, teacher training and research activities. The main purpose of this study specifically is to assess the effectiveness and efficiency of curriculum development process in local vocational schools.

One of the critical problems of many educational systems is how to improve job opportunities for the young people who do not compete for a post secondary education (Hudelson, 1994). Turkey is a developing country where the population is increasing rapidly. A high rate of increase in young population and inadequate quota for university education lead the Turkish Government to invest more in vocational education at the secondary level. As a result, training of the manpower becomes one of the crucial goals of the educational system. As an important part of this system, around 700 public vocational high schools with about 11.000 teachers prepare students for employment and higher education. These schools serve about 300.000 students (35% of the secondary education age group), and the government development plans foresee a commitment to increase both the supply and the quality of students in these schools (State Planning Agency, 1995)

Vocational education is considered efficient as long as it meets the needs of the students and the industry. "Business and students themselves are the customers of the 'educational workplace.' Without the appropriate product and processes, neither can compete in the global marketplace" (Hayes, 1994, p. 42). Students need a good education helping them meet competency levels required by the workplace; business and industry need a good vocational education providing quality training in priority skills for their future workers. For the last decade, public vocational high schools in Turkey has been under substantial pressure and criticism for the lack of sufficient skills and knowledge in their graduates required by the industry. Employers complain about the quality of the graduates, and are not willing to hire them. Graduates complain about the inadequacy of training in schools, and the difficulty of finding a satisfying job in their specialization. Vocational high schools, traditionally praised for their contribution to well-trained manpower for the industry, are becoming less-preferred educational institutions for middle school graduates.

This gloomy situation in the Turkish vocational education largely results from its inability to adapt to new developments and rapid changes in the industry. Today's industries and businesses are facing a challenge of succeeding in a very competitive world market, world of rapid technological developments and improvements in communication, and attempting to become more efficient and productive. To achieve that, they are "restructuring their management, operating and production processes, activities that in many cases have resulted in downsizing and in adoption of new technologies" (Lankard, 1994, p. 1). These changes apparently create a new list of competencies critical for the employees. The narrow-based skills required by simple one-task jobs of mass production of the Industrial Age are replaced by sophisticated and abstract technology related competencies such as high level communication and analytical skills, flexibility and adaptability, creativity and team-work skills (Brand, 1994).

In view of these new realities, vocational schools face a challenge to constantly examine the course content, strategies and implementation, update course curricula, and explore new areas to include in the overall vocational curriculum. Vocational schools need rigorous programs integrating academic and vocational subjects into future needs of young population, workplace realities and changing world of technology. One of the great challenges of curriculum planning for vocational schools has traditionally been the integration of academic competencies into vocational education curricula (Martinez and Badeaux, 1994). This integration is significant since average worker changes occupations four to six times in a lifetime and broad range of academic and vocational skills which reinforce and build on each other is imperative to workplace

success (Lankard, 1996). Therefore, the curriculum should be well researched and continuously updated, innovative courses should be designed, different types of subject areas should be integrated with a holistic view to allow students to learn knowledge and skills rapidly, and apply them competently. In addition, quality vocational programs are based on both industry's and students' needs, therefore cannot be developed without assessing the needs in these aspects.

Turkish vocational high schools are not exempt from the realities outlined above. Therefore, currently secondary vocational schools are under rigorous study to assess various aspects of the system in terms of their strengths and weaknesses in preparing the youth for the rapidly changing world of work, and to explore strategies for improving the effectiveness and efficiency of vocational education system in order to better meet the needs of the youth and the industry. One of these aspects is the process followed to update the vocational curriculum in line with the new developments in the industry. As we move from the Industrial Age to Information Age, the ever-changing needs of the industry present a great challenge for vocational high schools in updating their curriculum regularly. The traditional way of carrying out curriculum research and developing new curriculum at the central level may not meet the current needs of vocational schools and the industry. The current job market realities require schools to do their own curriculum research and development in collaboration with the local industry on a continuous basis. But, how successful are vocational schools in meeting these challenges? How effective is the curriculum in preparing the youth for the required skills of the industry? How are the new needs assessed? How effective is the curriculum development process? The answers to these questions are important to assess the current status of the curriculum, and develop recommendations to improve the effectiveness of the curriculum development process in vocational high schools.

Background of Vocational Education In Turkey

Educational system in Turkey is highly centralized and hierarchically structured. The system is administered by the Ministry of Education (MOE) which centrally determines many procedures and processes such as school policies and regulations, curriculum and standards, teacher appointments, etc. Secondary vocational schools are administered and supervised by several directorates at the MOE depending on their type (e.g., Girls Vocational Education Directorate, Boys Vocational Education Directorate, Tourism and Commercial Vocational Education Directorate). A large proportion of the secondary vocational schools are three year institutions and aim to offer general academic and vocational subjects. A smaller portion include four year technical high schools providing the same science education curriculum as the general high schools along with more vocational subjects. Both three and four year vocational schools receive students through centrally administered selection exams.

Curriculum development for vocational subject areas is carried out both at the central level and at the local school level, however, any curriculum to be implemented in vocational schools should be approved by the Board of Education of the MOE. Although curriculum development for any common academic subject like History, Mathematics, Sciences is almost entirely carried out at the Ministry level, vocational subjects present a different picture. Since there are too many subjects in different vocational areas, teachers in schools are allowed to develop curriculum in these areas and send it to the Board of Education of the MOE for approval. In fact a considerable number of curricula in vocational areas to date have been developed by groups of teachers in local schools.

The supervision system in Turkish educational system is also centralized. As public education institutions, all vocational schools are regularly visited by the Ministry inspectors to check teachers' compliance with the standard curriculum, evaluate their performance and provide recommendations to teachers and schools to improve the teaching and learning process. The

Ministry inspectors are also supposed to collect data on the effectiveness of the curriculum to inform the curriculum development process at the MOE level.

Vocational education has traditionally received occasional attention of the administrators in the government who announced vocational education a priority in their programs but somehow were not able to attend to the fundamental reform needs in the system. One exception to this may be the 3308 Vocational Education Act which became effective in 1986, and improved vocational education in several aspects. Since the initiation of this Act, the cooperation between vocational schools and the industry has improved with respect to internships, teacher and resource exchange, teacher training, technology transfer and financial contribution to schools. The industry was required to admit students for practical training, to establish an education department for this purpose, and to inform the schools and local vocational advisory councils of the new developments in the industry (e.g., employee needs, new technology and competencies). With the Act, a new department (called Vocational-Technical Education Research and Development Center - METARGEM) at the MOE was established to do research and planning, train teachers, evaluate and prepare instructional materials, and develop curriculum in vocational education. This department has contributed to research and curriculum development efforts in vocational education only to a limited degree, and has not been able to play the leadership role as it was originally envisioned by the Act.

Methods

The study design included a total of 14 vocational high schools and 12 companies that hire graduates of these schools in four relatively big and developed cities in Turkey (namely Ankara, Istanbul, Izmir and Bursa). Two to four vocational schools from each of these cities were involved in this study. Four of these schools house a four-year technical vocational school as well. Most of the 14 vocational schools are considered large scale schools covering many vocational specializations and serving more than a thousand students. These schools were selected based on the following criteria: (1) relation of the school curricula to relevant industries within the province, (2) the number of schools visited within a province should be proportional to the relative population within the province, (3) both boys' and girls' vocational high schools should be represented, and (4) different vocational areas should be represented in the sample (e.g., textile, construction, furniture making, electric-electronics). The companies were selected based on two criteria: (1) they should have a relation with one of the schools sampled (e.g., providing on-the-job training to students, employing graduates), and (2) both small and large-scale companies should be represented.

Mainly three data collection methods were used: interview, observation and document analysis. Six separate but parallel interview schedules were designed for principals, school-industry coordinators (most of the time they were assistant principals), teachers, senior students, industry managers responsible for school-industry relations and workers. The interview schedules included questions on the quality of school curriculum, needs assessment, curriculum development efforts, adequacy of workshops in schools, school-industry relations, on-the-job training, skills and knowledge of graduates, relevance of the vocational curricula to industry, transition from school to work, etc. These questions provided data, from the perspectives of school and industry participants , on the adequacy of the vocational curricula in equipping students with skills and knowledge required by the industry, and the effectiveness and efficiency of efforts to update the curricula.

The schools and companies were visited to carry out interviews and observations over a period of four weeks. The researchers spent approximately one day in each site for interviews and observations in classrooms and workshops. The school principal and school-industry coordinator were interviewed individually, and group interviews were carried out with a sample of teachers (approximately five) and of senior students (approximately seven) from different

departments in each school. In each industry site, the manager was interviewed individually, and workers who are recent graduates of vocational schools (approximately six) were group-interviewed. As a result, a total of 14 principals, 14 school-industry coordinators, approximately 70 teachers and 100 students were interviewed in schools while 12 industry managers, and approximately 70 workers participated in the interviews from the industry. Observations were carried out in classrooms and workshops in schools to critically examine the implementation of vocational curricula, and in workplaces in the industry to understand how interns adapt to practical training and to compare the training conditions of the industry to that of the schools.

Field notes were taken during observations and interviews. The researchers, right after each interview, went through the interview notes, added and revised them to have more complete descriptions of experiences of the interviewees. The interviews and observations produced a total of 365 pages of field notes (revised). Finally, documents collected from schools and the industry (e.g., worksheets, curriculum materials, daily, unit and yearly plans, on-the-job training schedules, student portfolios, school-industry meeting minutes) provided additional data for the study.

The data produced through interviews, observations and documents were subjected to content analysis. Content analysis involves searching for meaningful phenomena in the data, assigning them descriptive codes and exploring their relations to arrive at themes, and to describe the data as a meaningful whole (Miles & Huberman, 1994, Spradley, 1979). The researchers first coded all the field notes to describe the data related to the status of the vocational education curricula and curriculum development efforts. Both researchers went through all the notes to check each other's coding to establish consistency in the assignment of codes to the same phenomena. Second, the descriptive codes were grouped in categories which fit together meaningfully. These categories allowed to identify the main themes present in the data. Third, by using thematic codes, the whole data were examined again and restructured according to these themes. Then, a third level thematic coding was carried out to determine the general descriptive themes for the data. The thematic coding helped to establish the report structure within which the descriptions and interpretations of the findings were presented.

Results

The results are organized under three curriculum development related themes. First, the current status of the vocational curriculum is critically examined based on the responses of the interviewees, researchers' observations and document analysis. Second, the needs assessment undertaken for the purpose of curriculum development is examined; different approaches in and perceptions about needs assessment were compared. Finally, curriculum development efforts at vocational schools and the obstacles they face in this regard are described.

Current Status of Vocational Curriculum

Vocational education is meaningful and useful if it can provide employable and relevant skills and knowledge to its students. In the face of dramatic changes in the industry as we move from the Industrial Age to the Information Age this is a challenge for any vocational school attempting to equip its students with employable skills so that they can find jobs easily when they graduate. Cognitive, affective and psychomotor skills required in many advanced workplaces today are different from the one-task jobs required by the age of mass production. In the past, specialization in a certain area was promoted; today broad-based knowledge and skills are appreciated more since the individuals need to be flexible enough to adapt to changes and to learn new skills at work. One of the basic questions of this study was to identify the degree to which the schools visited were able to offer curriculum for their students in line with the competencies desired in the local industry.

The majority of the industry managers interviewed indicated that they need creative, open-minded, self-disciplined, flexible, motivated individuals who can make decisions independently, initiate new ideas, solve problems, communicate well and adapt to "industry culture" quickly. One industry manager in Bursa explained that they hire new personnel based on two types of qualities: the first is affective quality involving honesty, hard-working attitude, self-motivation, creativity and open-mindedness; the second is skill-based quality including problem solving skills, seeing the whole picture of production, and systematic thinking. He said that the current vocational school graduates are trained adequately at well-defined tasks but they lack the more sophisticated skills and attitudes required in today's industries. Industry managers and the workers who are recent graduates argued that vocational schools currently are not able to train students with these skills and attitudes, as a result, companies spend valuable time and money to train these individuals. They thought that the current vocational curriculum can train students with some degree of technical knowledge and skills, but is inadequate to respond to the realities of today's industry. Therefore, they suggested that the vocational curriculum should be critically examined and revised to the needs of the industry.

Majority of the principals and teachers of the schools visited seem to agree with industry managers that they are not able to prepare students with relevant skills and knowledge required by the industry. Except few cases, the majority acknowledged that their curriculum in general is outdated when the high rate of changes in the skills and in the machinery used by the industry are taken into consideration. It is indicated that the industry is able to follow the advances in technology much better and faster than the vocational schools because they are profit-oriented and always look for ways to improve the efficiency of the production process and the skills of their workers. However, vocational schools are not independent in their practice because of being part of a centralized bureaucracy.

Both principals and teachers outlined several reasons for outdated nature of the curriculum in their schools. First of all, the standardization of the curriculum nationwide which is an outcome of the centralized educational system appears to be a serious obstacle to training students with appropriate skills and knowledge consistent with the local industry needs. Almost all schools visited complained about the fact that they have to implement the curriculum approved by the Ministry of Education (MOE). The majority of the teachers interviewed explained the difficulties they experience in implementing a standard course curriculum even though the conditions and characteristics of the local industry require somewhat different content, skills and approaches in the same course. In addition, the kinds of courses that may be offered in a vocational department (e.g., electronics) should be the same in all vocational schools nationwide. Only elective courses can be added to the standard list of courses, but even then the elective courses need to be approved by the MOE. Teachers in three different schools brought up an example from their province to explain why a standard curriculum does not work. They said that the car-manufacturing industry in Bursa requires different types of skills and knowledge in workers geared toward auto electronics. Since the standard curriculum in vocational schools is not geared toward these specific needs, companies re hesitant to hire the graduates.

Second, the schools need the approval of the MOE for any change in their curriculum. Since the approval process of any curriculum development takes a long time as it is explained in the next section, teachers are not willing to go through this process. In addition, they are not provided any incentives for their efforts to develop curriculum. As a result, even if the teachers know that the curriculum needs to be updated, they are hesitant to initiate such an effort..

Third, school-industry coordinators and teachers felt that they stay behind the new developments in the industry since they are not provided with opportunities to improve their knowledge and skills in their field. As a result they have difficulties in updating the content and skills in their courses and adapt them to the new technology used in the industry. In several schools, teachers explained their efforts to update their knowledge and skills in their fields

through individual contacts in the industry and in the universities. In these cases, teachers infuse new knowledge and skills into their courses in an informal manner since they do not want to go through the formal channels of approval from the MOE.

Fourth, the curriculum of vocational schools is occupied by too many general academic courses which do not leave much room for vocational courses and workshops. Since the portion of academic and vocational courses in the school curriculum is determined by the MOE, the principals and teachers do not have much opportunity to adjust the curriculum in line with new developments in the industry except adding one or two elective courses. As Rabinowitz (1995) indicates, the success of any kind of vocational training requires an appropriate balance of three types of courses - core academic, generic workplace, and industry specific. However, principals and teachers argued that the current curriculum is in favor of general academic courses, and is weak in job-specific training of students. Another important aspect of this problem is the issue of integration of academic and vocational subjects in a way to support students' understanding of the different aspects of the world of work and help them adapt to new conditions in the future. The students interviewed pointed out that these two sets of courses are like different worlds. The knowledge and skills they learn in these subjects do not comply with each other in a meaningful way, thereby making academic curriculum "uninteresting and meaningless" for the students.

Finally, the students in all schools said that theoretical and practical parts of the school curriculum are not well integrated, that is, the content in theoretical courses and hands-on practices in workshops are not related to each other meaningfully. However, they felt that these two aspects are well integrated in the industry, that is, knowledge always supports the real world practice and process skills. Students are given tasks which require them to use their knowledge to solve work-related problems, resulting in meaningful and long-term learning in industry settings. As Vickers (1994) notes, "people learn more efficiently and perform more competently when motivated by the desire or need to solve real-world problems. Learning is less efficient when formal knowledge is delivered in the abstract and when there are no opportunities to apply that knowledge to tangible purposes in realistic concerns" (p. 25). The points students make seem to support Vickers' point of view.

Students realize the outdated features of the courses they take in schools when they start their internships in the industry. They say that the skills and knowledge required in the industry as well as the machinery used do not match with the ones they learn or use in schools. School-industry coordinators and industry managers in charge of industry-school relations also indicated that the interns experience many difficulties when they arrive at the industry because the knowledge and skills they learn in school become meaningless when they meet the new machinery and are asked to carry out the tasks they never experienced in school. Still the internship is found very useful by the students. It helps them learn about the new machinery and emerging competencies. Students realize that the internship is such a crucial part of their training since it gives them an opportunity to catch up somewhat with the new developments in their field. The principals, school-industry coordinators and teachers praised the 3308 Vocational Education Act of 1986 for initiating school-industry partnership to provide practical training for students in the industry. They said that the industry is now part of the vocational education system, and internships balance to a certain degree the theoretical nature of the school-based curriculum with hands-on training at work.

The observations in schools and the industry revealed that the machinery used in schools is in fact much older than the ones used in the industry. For example, in the case of knitting, schools still use hand-operated, mechanical knitting machines while the garment industry is using electronically operated advanced knitting equipment. The students in school workshops get used to hand operated knitting machines, however their skills do not help them much when they face with sophisticated electronic knitting machines. The industry managers say that almost all intern

students go through an intensive training which includes a completely new set of knowledge and skills before they are allowed to use the sophisticated equipment. Some teachers also acknowledge that they themselves have never seen some of these sophisticated knitting machines used in the industry.

Needs Assessment

Needs assessment is an important activity in identifying the required skills and knowledge in a certain area. Vocational schools need to determine the competencies required in the industry and update the current courses or design new ones accordingly. Traditionally vocational schools have suffered from inflexibility of their curricula in adapting to the fast-paced changes and the required competencies these changes initiated in the workplace. However, to keep up with the changes in the industry, vocational schools need to carry out needs assessment constantly, and to search for ways to update their curriculum.

The school principals indicated that there currently are no formal requirements and guidelines for their school personnel to do needs assessment in the industry. Formally the needs of the industry should be monitored by the Vocational-Technical Education Research and Development Center at the MOE. This center is supposed to carry out research and to make recommendations to the MOE for changes in the curriculum or to develop new ones. Many principals agreed that since its foundation in 1986 with the Vocational Education Act, this center has not been able to satisfactorily fulfill this task mainly because the task is too big to undertake at a central level. They added that although provincial education directorates, vocational education advisory councils and schools are supposed to provide data to the center on the developments in the industry, this information flow so far has not worked smoothly.

All the principals and teachers of 14 vocational schools visited agreed that identifying the needs of the industry is crucial since these needs serve as a basis for revising the content and strategies used in their current courses as well as designing new courses in line with the new areas introduced through the advances in the industry. Senior students echoed the concerns of their principals and teachers stressing the fact that the knowledge and skills they learned in schools may be outdated compared to the ones required in the industry. Therefore, they thought that the courses they take should continually be revised and updated based on the needs and the realities of the industry. The industry coordinators and workers also talked about the significance of research on new skills and knowledge to bring the school curriculum in line with new technology and workplace conditions.

Out of 14 vocational schools, seven did not report any experience in needs assessment; four had occasional experiences and three carried out systematic needs assessment activities. These three groups of schools teach us some very important lessons with regard to needs assessment process its possible outcomes.

Those schools not carrying out no needs assessment seem to be suffering from the outdated nature of the curriculum as well as low quality of student training. The principals and teachers complained about the gap between the school curriculum and the industry realities. They stated that they certainly need to identify the needs of the industry and these needs should inform the changes and improvements in their vocational courses. However, certain factors seem to prevent them from carrying out needs assessment in the industry. First of all, a large student population in these schools causing heavy teaching and supervising load for teachers does not leave much time for the teachers to do systematic needs assessment. Second, the school staff feel that it is very difficult to follow up on the identified needs since any change in the existing courses or initiation of a new course requires the MOE approval, which is such a long and cumbersome process discouraging teachers from undertaking such activities. Third, teachers are not provided with any reward or incentive by the MOE (e.g., financial contribution, released time, materials, inservice training). Finally, according to the principals, teachers traditionally are

used to implement the curricula developed at the MOE level without any major changes. Most teachers expected that the MOE should carry out needs assessment, identify new areas, assign committees and develop curriculum in new areas or update the current curriculum in vocational schools. Because of this expectation, teachers usually avoid critically looking at the courses they teach and exploring ways to update them in line with new developments. However, both principals and teachers interviewed accepted that the MOE cannot follow the new developments in all vocational areas and respond to local needs in that respect. The teachers indicated that they are in the best position to carry out needs assessment and to develop new curricula in line with the local industrial needs if they are given the time, materials and support by the school, the local industry and the MOE.

The industry managers interviewed reported that most schools sending students as interns to their workplaces do not carry out any systematic needs assessment to identify emerging technologies and related competencies in the industry, and to update their curriculum accordingly. Students are trained through a curriculum containing outdated skills and knowledge, and they experience many difficulties in the real workplace equipped with advanced technology. Several industry managers even argued that they prefer to hire general high school graduates with no job skills and to train them with relevant competencies since they find it more difficult to change and update the obsolete skills and knowledge the vocational school graduates possess. The industry managers believed that vocational education requires constant research in the industry and respective revisions in the curriculum if they aim to train their students with employable competencies. They firmly stated that the industry is prepared to offer several kinds of assistance to schools in this process such as teacher training, new material, job analysis and even developing new curriculum for the school.

The industry managers also complained about the MOE's inflexibility about curriculum change in vocational schools and bureaucratic difficulties the teachers must go through in updating or developing a course curriculum. They prefer that the local school is given a degree of freedom in revising and developing vocational course curriculum in line with the needs without seeking the approval of the MOE. They said that "the market conditions can ensure the effectiveness and relevance of the curriculum anyway." The industry managers also complained about the lack of research by the MOE on their needs. All the industry representatives say that they have never witnessed such a needs assessment activity by the MOE.

The four vocational schools which had occasional experiences in needs assessment also complain about their curriculum as inadequate in training students consistent with the industry needs. Needs assessment is not part of the overall planning in these schools, and its success is dependent on individual teachers visiting the industry on their own time, trying to find resources by themselves. However, the teachers that when needs assessment is undertaken, it contributes positively to many aspects of the school such as curriculum development, teacher development, and better relations with the industry. These schools were able to update some of the courses as a result of needs assessment in the industry. As a result, attempts to identify the industry needs in vocational areas result in a certain level of information and resource exchange between schools and the industry, a certain level of revision in course content and new learning experiences for teachers.

According to the principals, these schools sensed a need to work with the industry on identifying the competencies required in certain vocational areas using new technology (e.g., knitting, electro-mechanic, fashion design, ceramics) or in new vocational areas (e.g., AutoCAD, Quality Control) . The school's willingness to update the curriculum in vocational areas was also encouraged by the requests coming from the industry with regard to a new program or course in vocational schools so that the future graduates would have the needed skills in a certain area (e.g., radar technology, food technology). In these cases the industry offered the schools help with the assessment of needs, training of teachers, development of curriculum materials,

donations of machinery to schools and offering extensive internships to students in the industry. To start the needs assessment process, a group of teachers from schools first did a literature review and then made visitations to the industry to identify the skills and knowledge required in the respective areas. These schools sought and received help from the universities to do needs assessment and to use the data collected as a base for curriculum development. Industry representatives were also involved in needs assessment in these schools and later, these committees also served as curriculum development committees.

Those schools reporting a systematic needs assessment in all areas (one in Istanbul, one in Bursa and one in Izmir) seem to be more satisfied with their curriculum than others. The principals and teachers in these schools described this systematic activity as "on-going and effective." These schools set up teacher committees in each vocational area in the school to regularly assess the changes in the industry in terms of emerging needs, new equipment, and competencies required of the workers, and to revise the related courses accordingly or develop new ones if necessary. These committees regularly visited the industry, did research in their areas by speaking with workers, managers and trainers, and observing workplace process. In addition, they did a literature review in the field, tried to explore the vocational curriculum in other countries, and consulted the experts in universities. In some of these committees, there are people from the industry as well. Based on all these sets of information, the courses in the respective area are examined and revised each year. When a new course is required to meet the needs of the industry, the committee writes a curriculum guideline with the help of industry representatives and university professionals, and sends it to the MOE for approval. The principals also added that they follow up on the approval process at the MOE in order to speed up the process. All teachers, students and industry managers admitting the students as interns talk about the curriculum of these schools very positively by stating that it is in line with the new developments in the industry, and students are well trained in relevant job-related skills and knowledge.

These schools seem to be exceptional cases with regard to needs assessment process in such a centralized and bureaucratic educational system. Their success stems from a committed group of teachers, and principals acting as instructional leaders rather than bureaucratic administrators, and the schools' effective and efficient communication and collaboration with the industry.

Compared to those schools which carried out occasional needs assessment activities and those which had no such experience, these schools seem to be more satisfied with the quality of students they train. The principals and teachers explained that they continually try to update the school curriculum consistent with the needs of the local industry. The industry is very receptive of the efforts by the schools since they are the recipients of the graduating students and they would like them to be well prepared with relevant skills and knowledge for their needs. The schools establish a good communication with the industry during the needs assessment process allowing the school personnel to see the new developments in the industry and exchange personnel to train students in certain specializations. Students are also happy about this communication and collaboration between schools and the industry since they would like to learn the skills and knowledge they will need in the future world of work rather than some outdated competencies.

In schools where a systematic or occasional needs assessment is carried out, school-industry coordinators' observations in the industry during their supervision visits for students' practical training and meetings with industry representatives provide valuable information to schools about the developments and new technologies in the industry. Student portfolios also serve as important information sources to understand the differences between the competencies taught at school and in the industry. Sometimes industry managers initiate meetings with school representatives to discuss new technologies and/or the difference between the school curricula

and the specific skills required by the industry. These sources of information become a beginning for initiating a needs assessment effort with the aim of revising or developing a more relevant curriculum.

Curriculum Development Process

Where needs assessment is carried out, usually a curriculum development effort follows up in schools. However, the success of this effort varies. Needs assessment provides the basic information to start the curriculum development process, and most of the time the same group of people doing the needs assessment take part in curriculum development as well. As it is the case in needs assessment, seven schools visited reported no curriculum development experiences while four reported some successful and unsuccessful curriculum development experiences, and three reported some very successful curriculum development efforts.

The principals and teachers of the schools where there were no curriculum development activity complained about the inefficiency of curriculum examination and approval process at the MOE. According to them, there are multiple layers in the approval process. For example, if a single teacher wants to initiate a new elective and develops such a course, first it needs to be approved by the school principal. Then it goes to provincial education directorate for approval. Provincial education director sends it to the related central directorate at the MOE, and finally it goes to the Board of Education for approval. They said that this process takes such a long time that when the course is approved it may need development again when rapid changes are taken into consideration. They also complained about the lack of encouragement from the MOE for curriculum development at the local school level. The principals and teachers argued that the MOE has to give more freedom, responsibility and encouragement to schools in curriculum development and implementation without going through the cumbersome examination and approval process at the MOE level. In addition, vocational schools need a certain level of support from the MOE in terms of materials, financial support, release time, etc.

According to most principals and teachers, the MOE seems to be concerned more about establishing nationwide standards in curriculum than encouraging and assisting the curriculum improvement efforts in individual schools or provinces. Industry managers also argued that the curriculum of vocational schools should not be standardized nationwide. A general curriculum does not meet the specific needs of the local industry. They suggested that geographical or local conditions should be taken into consideration in designing curriculum. Otherwise it will be very difficult to close the gap between the school curriculum and the industry realities.

Four schools reported occasional experiences in revising the existing curriculum or in curriculum development based on needs assessment they carried out. When the revisions were done in the curriculum, in some cases, schools presented the revisions to the MOE for approval, in other cases, schools felt some degree of flexibility in the course curricula and went ahead with implementation of the revisions without seeking the approval of the MOE. This difference among schools results from the amount of revisions done in the course curricula. The revisions may involve just changing the sequence of topics to be taught, changing the amount of time spent on each topic and/or taking out one or two topics and/or adding one or two new ones. In these cases, teachers feel that this is not a fundamental change to the course curriculum, and therefore there is no need to seek the approval of the MOE. On the other hand, when a substantial revision or replacement is needed in the course content, teachers feel a need to seek the approval from the ministry.

In most of the schools, teachers reported that they occasionally infuse new knowledge and skills during the implementation of the course curriculum but refrain from displaying them in their unit plans and yearly reports since by regulations they have to teach within the stated scope of the approved curriculum. This seems to be an informal way of curriculum revision according

to emerging needs since by regulations any major change or revision in the curriculum requires the approval of the MOE.

In three schools (in Istanbul, in Bursa and in Izmir) where curriculum development is carried out more systematically than others, there are some common processes and strategies followed. First of all, these schools carry out needs assessment in all areas regularly as reported in needs assessment section. When needs assessment report is complete, a curriculum development committee is set up to write the curriculum guideline. Teachers in related areas, senior workers from the industry, in some cases, representatives from the university are involved in these committees. The school principal provides some release time to the teachers so that they can carry out curriculum-related research in the industry and the universities, and write the curriculum guideline. The industry representatives help the committees with materials and training for the teachers in the industry. Once the curriculum guideline is written, it is submitted to the MOE for examination and approval. As reported by the principals and teachers, the approval time varies. In some cases, it takes six months while in other cases it may take years. The school principal's and the local education directorate officials' efforts in this process seems crucial. If the MOE officials can be persuaded that an urgent approval is needed to meet the needs of the school and the local industry, the approval process may take less time.

The principals and teachers of these schools argued that the work they do on curriculum is unavoidable given the nature of vocational training which changes rapidly in many respects. They also added that although the centralized and bureaucratic nature of the educational system presents many obstacles to curriculum development, local schools can and should still revise course curricula and develop new ones when the needs arise.

Development of elective courses appears to be a effective way of meeting the needs of the local industry and equipping students with relevant skills and knowledge in line with local industry. In the three schools carrying out systematic needs assessment and curriculum development, this principle works well since the teachers are encouraged and given the opportunity to develop elective courses. The industry representatives helped these schools since the elective courses would directly respond to the competencies needed in their workplaces. These schools were also able to gather assistance from the universities in development of the elective courses. However, in other schools the principals and teachers describe many difficulties in developing and offering elective courses like heavy teaching load for teachers, classroom shortage for electives, lack of good communication and collaboration with the industry and the universities.

Relevant and practical instructional materials are crucial part of quality teaching, and often their development is considered as part of the curriculum development process. In the three schools where the curriculum development worked smoothly compared to other schools, material development was also an important concern. The industry provided a good level of support to the curriculum development committees on instructional material development by ordering books and manuals from abroad, having them translated, getting help from the universities, etc. Again, this proves that an effective cooperation and collaboration with the industry greatly contributes to schools' efforts in providing quality training to their students.

The location of the school appears to play an important role in keeping up with developments in the industry and reflecting it on the school curriculum. For example, the principal and teachers of one vocational school in Istanbul argued that since Istanbul is the center of the garment industry, they have the first hand information on the changes in the industry. The principal is a member of the Istanbul Export Union and she has close contacts with the industry. She and the teachers in the school are always invited to seminars and conferences organized by the industry, and these constitute valuable sources of information for updating their courses and improving teachers' knowledge and skills in relevant areas.

A good communication with the industry makes a valuable difference in the success of curriculum development efforts. One case proves that very well. After several problems

experienced between the hotels and a vocational school in Izmir with regard to the skills and knowledge of the students before their practical training in hotels, the school invited the hotel representatives to the school to look at their courses critically and to provide feedback. Hotel representatives came to the school and prepared a lengthy report outlining the areas which needed improvement in the school curriculum. A curriculum development committee was assigned by the principal involving school teachers and hotel representatives, and based on the report and further needs assessment studies, entire curriculum in the department was revised and submitted to the MOE for approval. Currently, this revised curriculum is being used and both sides appear to be satisfied with it.

Another important factor in successful curriculum development efforts seems to be the collaboration and communication among teachers within the same school. One school in Bursa presents an exemplary case in this regard. According to the principal, teachers in the same department meet regularly at the beginning of each semester to discuss the curricular problems of the previous semester and to suggest revisions along with other activities such as exams and material development. The work to be done on the curriculum revisions is outlined, and this process continues within a set schedule. If there is a need, teachers also develop new curriculum and present it to the MOE for approval.

Industry managers thought that they should have a role in curriculum development process since they are the recipients of the students as workers following their graduation. They argued that they may be in a good position to introduce the developments in the industry to the vocational school curriculum. When the industry is involved in curriculum development, then vocational schools have a good chance of keeping up to date with technology, skills and knowledge. The workers interviewed in the industry agreed with these points indicating that industry representatives know the practical aspects of their work and can contribute to a great degree in developing a relevant and up-to-date course curriculum. The school principals and teachers also welcomed the representatives from the industry to curriculum development committees citing several successful experiences with them. All interviewees agreed that the MOE should work on a guideline for involving industry representatives in curriculum development efforts at local vocational schools.

Out of 14 schools visited, four (two in Istanbul, one in Izmir and one in Bursa) had school-based advisory councils which consisted of school principal, school-industry coordinator, local industry representatives, provincial education director, chambers of commerce, workers union and employers union representatives. These councils provide a forum for the industry and the school to raise issues, problems, new areas to explore, ways to meet the needs of the school and the industry. New needs in the industry are discussed and curriculum development efforts in these areas are supported. The principals of these schools reported that these councils play an important role in updating the school curriculum, supplying new curriculum materials, receiving help from universities, getting approval from the MOE on new curriculum. Such a council appears to be crucial in successful curriculum development efforts. Almost all principals suggested that there should be an advisory council in each school meeting regularly, studying the needs of the industry and assisting the curriculum research and development efforts.

Discussion

The results of this study show that the standardized curriculum in vocational education does not meet the needs of students and the industry. The curriculum in general is outdated compared to the new competencies required in the industry. Only few vocational schools are able to keep up with rapid changes in the competencies required of their students through a systematic needs assessment and curriculum development efforts. Other schools suffer from outdated curriculum focusing on traditional task oriented skills and knowledge. The internship experience in the industry provides students with relevant skills and knowledge, and, for most

students this experience is the most useful part of their training. However, the industry managers argue that students cannot take full advantage of the internship experience since the skills and knowledge they bring to the workplace are obsolete. The principals, school-industry coordinators, teachers, students, and the recent graduates of these schools all agree that the curriculum should continually be assessed and updated to bring it in line with the changes and developments in the industry.

The needs assessment process works well in some schools but not in others. Although there are no formal requirements for doing needs assessment, those schools experienced in needs assessment view this process as crucial in responding to the needs of the students and the industry as well as in establishing committees involving teachers and industry representatives for this purpose. These schools realize that the formal ways that the MOE uses to determine the needs of the industry and informs the schools about these needs do not work. So, rather than expecting information from the top, they carry out this activity themselves on a regular basis. Needs assessment activity contributes to the curriculum development process in schools, to the professional development of teachers and to the communication and collaboration between the schools and the industry. These schools also prove that despite the difficulties and lack of sufficient professional rewards, teachers in a single school can professionally assess the needs of the industry, receive help from the industry, universities and other local organizations, and reflect the results of the assessment on their curriculum.

The heavy teaching and supervising load, inadequate financial resources and rewards, lack of leadership and good communication with the industry and the passive mood in teachers, largely because of highly structured and hierarchical school system, appear to be the main reasons for not doing needs assessment in vocational schools. Among these, the lack of effective communication between schools and the industry appears to be a major impediment to systematic needs assessment process. Although the school and industry representatives indicate that they are always open to and willing for such a communication flow, the lack of structure and of clear-cut responsibilities prevents effective communication and collaboration. Nevertheless, even within the schools where no needs assessment activity is carried out, there is a general understanding that the local schools, rather than the MOE, should do needs assessment.

The centralized nature of the educational system also appears to be a major obstacle to curriculum development efforts in vocational schools. Approval of curriculum is long and cumbersome, and is not responsive to the rapid changes in the industry. The multiple layers of approval process discourages teachers from any curriculum development activity. As a result, the majority of the vocational schools attempt to train students with an outdated set of curricula although they are well aware of the fact that they are not preparing students with relevant and updated competencies.

Curriculum development efforts take place in some schools and the results are very encouraging. Teachers are satisfied with what they do, students are satisfied with the training they receive and the industry representatives readily welcome the students as soon as they graduate. There are several reasons for continuous curriculum development activities in these schools. First of all, there is good communication, cooperation and collaboration between the school and the industry. Second, school-based advisory councils consisting of school and industry representatives, local education director, and local union representatives provide a strong support for these efforts. Third, the school receives technical help from the universities in curriculum development. Fourth, the principals of these schools act as instructional leader and provide support to the teachers in many respects. For example teachers are relieved of their teaching duties to a certain degree, and are provided certain resources and rewards (e.g., attendance at seminars and conferences). The success stories in needs assessment and curriculum development as to the specific needs of the local industry prove the significance of the cooperation and collaboration between the school and the industry. These results justify a

needed cooperation between schools and industry which has been proposed many times, but never been carried out effectively (Dogan, 1987).

In other schools, however, we found limited curriculum development activities We noted several reasons for this such as that the process works very slowly discouraging teachers from initiating new curriculum research and development activities in a highly centralized and bureaucratic system. This process involves multiple layers of approval procedures and a huge amount of bureaucratic paperwork. In addition, the reward of involvement in this process is considerably small for teachers in terms of both financial and professional terms. The educational system includes no specific reward structure to motivate teachers for research and to develop curriculum for the renewal of knowledge and skills in their fields.

This study teaches us several lessons. First, improving the quality of the curriculum in vocational high schools seems to be an effective school-to-work transition by increasing their employability. In order to achieve this, existing curriculum needs to be assessed in terms of their limitations and strengths. Second, the curriculum development process as it is experienced appears to be very vague, and the role of the industry in this process is not clear. The success stories where the schools and the industry successfully collaborate to develop a new curriculum present good examples to strengthen this collaboration for other schools and industries as well. Third, the needs for curriculum development in vocational areas are different from that of an academic curriculum. However, the Ministry of Education follows the same curriculum development and approval procedures for both vocational and academic curricula. Overall, the results of this study indicate that existing MOE structure, procedures and administrative philosophy do not serve well to an effective vocational curriculum development.

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