

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

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The purpose of this study was to assess the effectiveness and efficiency of the curriculum development process in selected local vocational schools in Turkey through individual and group interviews. The participants included administrators, school-industry coordinators, teachers and students in selected secondary vocational high schools, and managers and workers in selected companies. Relevance of the vocational curricula to industry, needs assessment, curriculum development efforts, school-industry relations, and on-the-job training were some of the main areas investigated through interview questions. Interview results indicated that in general the vocational curriculum is outdated, and the procedures and processes for curriculum development create serious obstacles to updating the curriculum in line with the needs of students and industry.

INTRODUCTION

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 the young population and inadequate quota for university education led the Turkish Government to invest more in vocational education at the secondary level. As a result, training of the manpower became 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. These schools serve around 300,000 students (35% of the secondary education age group), and the government development plans indicated 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. Students need quality education in order to meet competency levels required by the workplace. From vocational education, industry expects quality training in priority skills for their future workers. For the last decade, public vocational high schools in Turkey have been subjected to substantial criticism for the lack of sufficient skills and knowledge in their graduates required by the industry. Employers are not satisfied with 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 (Olkun and Simsek, 1999). Vocational high schools, traditionally praised for their contribution to well-trained manpower for industry, are becoming less-preferred educational institutions for middle school graduates (Ministry of Education, 1999).

This gloomy situation in Turkish vocational education largely results from its inability to adapt to new developments and rapid changes in industry. Today's industries 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 course content, strategies and implementation, as well as to update course curricula, and explore new areas to include in the overall vocational curriculum. Vocational schools need rigorous programs integrating academic and vocational subjects that meet the future needs of a young population by addressing workplace realities and the 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 & Badeaux, 1994). This integration is significant since the average worker changes occupations 4-6 times in a lifetime, and a 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, continuously updated, and innovative courses should be designed. Different types of subject areas should be integrated with a holistic view to allow students to develop knowledge and skills rapidly and apply them competently. In addition, quality vocational programs based on both industries' and students' needs cannot be developed without assessing the needs of both sides.

Turkish vocational high schools are not exempt from the realities outlined above. Currently, secondary vocational schools are under rigorous study to assess various aspects of the systems 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 of vocational education systems 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 the 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 do vocational schools deal with these challenges? What role does the current curriculum play in preparing youth for the required skills of the industry? How are the new needs assessed? What type of curriculum development process takes place in these schools, and to what degree does this process respond to curriculum development needs of schools?

The answers to these questions are important in assessing the current status of the curriculum and in developing recommendations to improve the effectiveness of the curriculum development process in vocational high schools.

BACKGROUND OF VOCATIONAL EDUCATION IN TURKEY

The 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, and teacher appointments. Secondary vocational schools are administered and supervised by several directorates at the MOE (e.g., Girls Vocational Education Directorate, Boys Vocational Education Directorate, Tourism and Commercial Vocational Education Directorate). These schools are 3-year institutions (covering 9-11th grades) and receive students through centrally-administered selection exams. The graduates of these schools are hired by industry as apprentice craftsmen. They also have the option of continuing their education at the university level (Ministry of Education, 1999).

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 subjects like History, Mathematics, and the Sciences is entirely carried out at the Ministry level without much input from schools, vocational subjects present a different picture. Vocational schools can develop new course curriculum and apply to 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 vocational schools. Once a new curriculum developed locally is approved by the MOE, it may be used in other vocational schools as well. (Ministry of Education, 1999).

Supervision in the Turkish educational system is also centralized. All public education institutions including vocational schools are regularly visited by the Ministry inspectors to check teachers' compliance with the standard curriculum to evaluate their teaching performance and to provide recommendations for improving the teaching and learning process. The Ministry inspectors are also expected to collect data on the effectiveness of the curriculum being implemented and the results are forwarded to the MOE for consideration in the next cycle of curriculum development initiatives (Yildirim, 1997).

The Vocational Education Act passed by the Turkish Parliament in 1986 set the guidelines for cooperation between vocational schools and industry in the areas of internships, teacher and resource exchange, teacher training, technology transfer, and financial contributions to schools (Sezgin, 1994). Since then significant improvements have been made. The industry is now 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).

METHOD

SAMPLE

The study sample included a total of 14 vocational high schools and 12 companies that hire graduates of these schools in four relatively big and developed provinces in Turkey (namely Ankara, Istanbul, Izmir and Bursa). These provinces were purposefully selected since they

represented a greater variety in industry as well as the programs the vocational schools offered. Two to four vocational schools from each of these cities were involved in this study. These schools were purposefully selected based on the following criteria: (a) the school curricula were in line with the industrial areas within the province, (b) the number of schools visited within a province was proportional to the relative population within the province, (c) both boys' and girls' vocational high schools were represented, (d) different vocational areas were represented (e.g., textile, construction, furniture making, electric-electronics), and (e) the schools were large scale covering many vocational specializations and serving more than a thousand students. The companies were also purposefully selected based on two criteria: (a) they had a relation with one of the schools sampled (e.g., providing on-the-job training to students, employing graduates), and (b) both small and large-scale companies were represented.

Purposeful sampling strategy (Fraenkel & Wallen, 1993) was used in selection of provinces, schools and companies, and the random-sampling technique was used to select the participants in the schools and the industry. Therefore, the results cannot be directly generalized to all vocational schools in Turkey, and this appears to be a limitation of the study. However, since representation of a large spectrum of school programs and of industries was achieved through the sample, the results may provide useful insights into the process of curriculum development taking place in these institutions.

DATA COLLECTION INSTRUMENTS

Individual and focus-group interviews were used as the main data collection methods. Six separate but parallel semi-structured interview schedules were designed for principals, school-industry coordinators, teachers, senior students, and industry managers responsible for school-industry relations and employees. The interview schedules included questions on the quality of school curriculum, the adequacy of skills and knowledge of graduates, relevance of the vocational curricula to industry, transition from school to work, needs assessment activities, school-based curriculum development efforts, school-industry collaboration in the area of needs assessment and curriculum development, on-the-job training, the process of curriculum review and approval, and the reaction of the MOE to school-based curriculum development. 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.

DATA COLLECTION PROCEDURES

The schools and companies were visited to carry out interviews over a period of 4 weeks. The school principals and school-industry coordinators were interviewed individually, and focus-group interviews were carried out with a sample of teachers (approximately five) and of senior students (approximately seven) from different departments in each school. The purpose of the focus-group interviews was to give participants a chance to consider and build on what another individual in the group said about the issues raised. Teachers and students were selected randomly for the interviews. In each industry site, the manager was interviewed individually, and the employees who were recent graduates of vocational schools (approximately six in each company) were subjected to group-interviews. As a result, a total of 14 principals, 14 school-industry coordinators, 68 teachers and 95 students were interviewed in schools while 12 industry managers and 70 workers participated in the interviews from the industry. Interviews were tape-recorded and later transcribed for data analysis.

DATA ANALYSIS

The interview data 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 read through all the interview data to identify meaningful units based on the research questions and assigned descriptive codes to these units. For example, codes like “open-minded,” “flexible,” “motivated,” “independent thinking,” and “problem solving” were used to describe the data in relation to the quality of vocational school graduates. Both researchers went through all the data to check each other’s coding to establish consistency in the assignment of codes to the same phenomena. Second, the descriptive codes which fit together meaningfully were grouped in categories such as “qualification of graduates,” “job requirements,” “on-the-job training,” and “school-industry collaboration.” These categories allowed to identify the main themes present in the data. The whole data were re-examined and restructured according to these themes. Finally, a third-level thematic coding was carried out to determine the general themes for the data. The codes at this level included themes like “curriculum quality,” “needs assessment,” “curriculum development,” and “curriculum approval.” The thematic coding helped to establish the report structure within which the descriptions and interpretations of the findings were presented.

RESULTS

We organized the results under three themes. First, we assessed the current status of the vocational curriculum in the vocational schools sampled. Second, we looked at the needs assessment activities undertaken by these schools. Finally, we examined the curriculum development efforts taking place in the schools.

CURRENT STATUS OF VOCATIONAL CURRICULUM

Vocational education is meaningful and useful if it provides 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 type of education is a challenge for any vocational school attempting to equip its students with employable skills so that they can find relevant jobs following their graduation. 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 needed creative, open-minded, self-disciplined, flexible, motivated individuals who could make decisions independently, initiate new ideas, solve problems, communicate well, and adapt to “industry culture” quickly. One industry manager in Bursa explained that they hired new personnel based on two types of qualities: the first was affective quality involving honesty, “hard-working attitude,” self-motivation, creativity, and open-mindedness; the second was cognitive quality including problem-solving skills, and holistic 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.” Both industry managers and the workers argued that vocational schools were not able to train students with these qualities; as a result, companies spent valuable time and money to retrain the newly-hired individuals.

A majority of the principals and teachers of the schools visited agreed with industry managers that they were not able to prepare students with relevant skills and knowledge required by the industry. Except in a few cases, the most acknowledged area was the content of the curriculum involving outdated knowledge and skills in reference to the high rate of changes in the skills and machinery used in the industry. Both principals and teachers outlined several reasons for outdated nature of the curriculum in their schools. First of all, the nationwide standardization of the curriculum within a centralized educational system was seen as a serious obstacle to train students with appropriate skills and knowledge consistent with the local industry needs. A standard curriculum clearly may not respond effectively to the conditions and characteristics of the local industry. For example, the car-manufacturing industry in Bursa required certain specific skills and knowledge in workers geared toward auto electronics. Since the standard curriculum in vocational schools was not geared toward these specific needs, companies were hesitant to hire the graduates of these schools.

Second, school-industry coordinators and teachers felt that they stayed behind the new developments in the industry since they were not provided with opportunities to improve their knowledge and skills in their field. As a result they had difficulties in updating the content and skills in their courses and adapting them to the new technology used in the industry.

Third, the curriculum of vocational schools was preoccupied by general academic courses that did not leave much room for vocational courses and workshops. Since a large number of academic and vocational courses in the curriculum was determined by the MOE, the principals and teachers did not have much opportunity to adjust the curriculum in line with new developments in the industry except by adding one or two elective courses. Another important aspect of this problem was the issue of integration of academic and vocational subjects in a way to support students' understanding of different aspects of the world of work, and to help them adapt to new work conditions. Students pointed out that these two sets of courses were like two different worlds. The knowledge and skills they learned in these subjects were not integrated in a meaningful way, resulting in "uninteresting and meaningless experiences" for the students.

Finally, the students mentioned that theory and practice in the school curriculum were not well integrated; that is, the content in theoretical courses and hands-on practices in workshops did not relate to each other meaningfully. However, they felt that these two aspects were well integrated in industry, and knowledge always supported the real world practice and process skills. Workers in industry undertook tasks which required application of knowledge to work-related problems. 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 school curriculum appeared to have serious weaknesses in bringing theory and practice together in a meaningful way.

Students commented on the outdated features of the courses they took in schools when they started their internships in the industry. They said that the skills and knowledge required in the industry as well as the machinery used did not match with the ones they learned or used in schools. School-industry coordinators and industry managers also indicated that the interns experienced many difficulties when they arrived at the industry because the knowledge and skills they learned in school became meaningless when they met the new machinery and were asked to carry out the tasks they never experienced in school. As a result, the internship became

a crucial part of students' training since it gave them an opportunity to catch up with the new developments in their field. The principals, school-industry coordinators, and teachers praised the Vocational Education Act of 1986 for initiating school-industry partnerships to provide practical training for students in industry. They said that the industry became part of the vocational education system, and internships balanced to a certain degree the theoretical nature of the school-based curriculum with hands-on training at work.

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 industry and update 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 were no official requirements and guidelines for their school personnel to do needs assessment in the industry. Formally, the needs of the industry are monitored by the Vocational-Technical Education Research and Development Center at the MOE. This center carries out research and makes recommendations to the MOE for changes in the curriculum or to develop new curricula based on the needs reported by local education authorities and schools. 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 of ineffective communication between the center and the local education authorities and schools. All the principals and teachers agreed that identifying the needs of the industry was crucial since these needs served as a basis for revising the content and strategies used in their current courses as well as designing new courses. Senior students echoed the concerns of their principals and teachers stressing the fact that the knowledge and skills they learned in schools were outdated compared to the ones required in 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, 7 did not report any activity under needs assessment; 4 had few activities; and 3 carried out needs assessment activities systematically. Varying experiences of these schools, presented in the next section, offer us some very important lessons with regard to the needs assessment process and its possible outcomes.

SCHOOLS CARRYING OUT NO NEEDS ASSESSMENT

These schools seemed 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 school curriculum and industry realities. They stated that identifying the needs of industry was crucial to inform the changes and improvements in vocational courses. However, various factors prevented them from carrying out needs assessment in industry. First of all, a large student population in these schools leading to heavy teaching and supervising load for teachers did not leave much time for the teachers to do systematic needs assessment. Second, the school staff felt that it was very difficult to follow up on the identified needs since any change in the existing courses or initiation of a new course required the MOE approval. This process was perceived to be a long and cumbersome process, and it discouraged teachers from undertaking

such activities. Third, teachers were not provided with significant rewards or incentives by the MOE (e.g., financial contribution, released time, materials, inservice training). Finally, according to the principals, teachers traditionally were used to implement the curricula developed at the MOE level without any major changes. Some teachers expected the MOE to be primarily responsible for carrying out needs assessment, assigning committees, and updating or developing curriculum. This expectation may prevent teachers from looking at the courses they teach critically. Other teachers felt that they, not the MOE, were in the best position to carry out these activities. They argued that the MOE was not able to follow the new developments in all vocational areas and respond to local needs in that respect.

The industry managers receiving interns from these schools reported that the interns subjected to a school-based curriculum containing outdated skills and knowledge experienced major difficulties in the real workplace equipped with advanced technology. Several industry managers even argued that they preferred to hire general high school graduates and to train them with relevant competencies since they found it more difficult to change and update the obsolete skills and knowledge the vocational school graduates possessed. Industry managers believed that vocational education required constant research in industry and curriculum revisions if the aim was to train their students with employable competencies. They preferred that the local school be given a degree of freedom in revising vocational course curriculum without seeking the approval of the MOE, as one said, "the market conditions can ensure the effectiveness and relevance of the curriculum anyway."

SCHOOLS CARRYING OUT SOME NEEDS ASSESSMENT

The participants from these four schools also complained about the curriculum as inadequate in training students consistent with industry needs. Needs assessment was not part of the overall planning in these schools, and its success was dependent on individual teachers visiting industries on their own time and trying to find resources themselves. However, the teachers said that when a needs assessment was undertaken, it positively contributed to many aspects of the school such as curriculum development, teacher development, and better relations with industry. Attempts to identify industry needs in vocational areas resulted in information and resource exchange between schools and 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 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 industry with regard to a new program or course in vocational schools so that 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 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 visits to various industries 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 basis for curriculum development. Industry representatives were also involved in needs assessment in these schools, and later these committees also served as curriculum development committees.

SCHOOLS CARRYING OUT SYSTEMATIC NEEDS ASSESSMENT

The participants from these three schools (one in Istanbul, one in Bursa, and one in Izmir) were more satisfied with their curriculum than the 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 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 industry, and did research in their areas by speaking with workers, managers, and trainers, and observing workplace processes. 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 were people from industry as well. Based on all these inputs, the courses in the respective area were examined and revised each year. When a new course was required to meet the needs of industry, the committee wrote a curriculum guideline with the help of industry representatives and university professionals and sent it to the MOE for approval. The principals also added that they followed up on the approval process at the MOE in order to speed up the process. All teachers and the industry managers who supervised the students as interns talked about the curriculum of these schools very positively by stating that it was in line with the new developments in industry and students were well trained in relevant, job-related skills and knowledge.

These schools seem to be exceptional cases with regard to the 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 industry (Simsek & Yildirim, 2000).

CURRICULUM DEVELOPMENT PROCESS

Needs assessment provides essential data to revise and/or develop the curriculum. Eleven of the schools visited reported no curriculum development efforts while three reported some very successful curriculum development initiatives.

SCHOOLS CARRYING OUT NO CURRICULUM DEVELOPMENT

There is a multi-layer curriculum examination and approval process in vocational education. If a single teacher or a group of teachers attempt to develop a new course, first it needs to be endorsed by the school principal. Then, it goes to the provincial education directorate for approval. The provincial education director sends it to the related central directorate at the MOE, and finally it goes to the Board of Education for final approval. Principals and teachers complained about the inefficiency of this process which may take such a long time that when the course is approved it may need revision again in the face of rapid changes in the respective area. In addition, lack of support in terms of release time, financial support, and lack of materials were reported to be major impediments in curriculum development at the local school level. The principals and teachers described many difficulties in developing and offering elective courses because of heavy teaching loads for teachers, classroom shortage for electives, lack of good communication, and collaboration with industry and universities.

Out of 11 schools where there were no major curriculum development efforts, 4 schools reported occasional experiences in course revision based on needs assessment they carried out. The revisions involved 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 topics. In these cases, teachers felt that changes were not fundamental; therefore, there was no need to seek approval of the MOE.

SCHOOLS CARRYING OUT SYSTEMATIC CURRICULUM DEVELOPMENT

The three schools (one in Istanbul, one in Bursa, and one in Izmir) that carried out systematic curriculum development presented some common processes and strategies. First of all, these schools carried out periodic needs assessment in all areas as reported in the needs assessment section. When the needs assessment report was complete, a curriculum development committee was set up to write the curriculum guidelines. Teachers in related areas, senior workers from industry, and in some cases representatives from the university were involved in these committees. The school principal provided some release time to the teachers so that they could carry out curriculum-related research in industry, work with universities, and write the curriculum guidelines. The industry representatives helped the committees with materials and training for the teachers in industry. Once the curriculum guidelines were written they were submitted to the MOE for examination and approval. According to the principals and teachers, the approval time varied. In some cases, it took 6 months while in other cases it took several years. The school principals' and the local education directorate officials' efforts in this process seem crucial. If the MOE officials could be persuaded that an urgent approval was needed to meet the needs of the school and the local industry the approval process usually took less time.

Development of elective courses appears to be an effective way of meeting the needs of local industry and equipping students with relevant skills and knowledge expected by industry. In order to achieve this purpose, the school administrators encouraged teachers to develop elective courses. Industry representatives helped the school in this process since the elective courses would directly respond to the needed competencies in their workplaces. These schools also received assistance from the universities in development of elective courses.

The location of the school plays 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 was the center of the garment industry, they had first hand information on the changes in the industry. The principal was a member of the Istanbul Export Union, and she had close contacts with industry. She and the teachers in the school were always invited to seminars and conferences organized by industry, and these constituted valuable sources of information for updating their courses and improving teachers' knowledge and skills in relevant areas.

Another important factor in successful curriculum development efforts was the collaboration and communication among teachers within the same school. One school in Bursa presented an exemplary case in this regard. According to the principal, teachers in the same department met 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 was outlined, and this process continued within a set schedule. If there was a need, teachers also developed new curriculum and presented it to the MOE for approval.

Industry managers thought that they needed to take part in the curriculum development process since they were the recipients of the students as workers following their graduation. They

argued that they were in a good position to introduce the developments in industry to the vocational school curriculum. When industries were involved in curriculum development, vocational schools had a good chance of keeping up-to-date with technology, skills, and knowledge. The workers interviewed in industry agreed with these points indicating that industry representatives knew the practical aspects of their work and could contribute to a great degree in developing a relevant and up-to-date course curriculum.

Each of these three schools had a very active school-based advisory council, and the contribution of this council to curriculum development is noteworthy. The council consisted of the school principal; the school-industry coordinator; local industry representatives, the provincial education director; and representatives from local chambers of commerce, workers union, and employers union. It provided a forum for the industry and the school to raise issues, problems, new areas to explore, and ways to meet the needs of the school and industry. New needs in industry were discussed, and curriculum development efforts in these areas were supported. The principals of these schools reported that these councils played an important role in updating the curriculum, supplying new curriculum materials, receiving contributions from universities, and getting approval from the MOE on new curriculum. Such a council that meets regularly, studies the needs of industry, and assists curriculum research and development efforts, appears to be crucial in successful curriculum development.

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 standard curriculum appears to become outdated in a short period of time in the face of ever-changing competencies in industry. Only few vocational schools are able to keep up with these changes through a systematic needs assessment and curriculum development process. Other schools suffer from outdated curriculum focusing on traditional task oriented skills and knowledge.

The needs assessment process works well only in a few schools. Although there are no formal requirements for doing needs assessment, these schools view this process as crucial in responding to the needs of students and industry. They realize that the formal ways used by the MOE to determine the needs of industry and inform 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 industry. Experiences of 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 industry, receive help from 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 poor communication with industry, and reluctance among teachers largely due to a 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 industry appears to be a major impediment to the 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 prevent effective communication and collaboration.

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 a long and cumbersome process and is not responsive to the rapid changes in industry. The multi-layer 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.

Despite the centralized nature of the educational system and the impediments to curriculum development at the local level, 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 industry. Second, a school-based advisory council provides a strong support for these efforts. Third, the school receives technical help from the universities in curriculum development. Finally, the principal of the school acts as instructional leader and provides support to the teachers. For example, teachers are relieved some of their teaching duties and are provided certain resources and rewards (e.g., attendance at seminars and conferences).

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 strategy for increasing the employability of graduates. In order to achieve this, existing curricula need to be assessed in terms of their limitations and strengths. Second, the curriculum development process as it is practiced 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 MOE follows the same curriculum development and approval procedures for both vocational and academic curricula. Finally, even within a hierarchical structure, the school and the industry can collaborate on needs assessment and curriculum development and work together to respond to each others' needs.

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