An Overview of Solutions Regarding the Problems in Vocational and Technical Education - Example of Elazığ Province

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ABSTRACT: Vocational and technical education institutions help to train individuals in a well-equipped manner, increase their employability level, and provide workforce in areas that countries need. Vocational and technical education is of great importance in terms of ensuring the development of countries at the national and international level, training qualified intermediate staff and increasing employment opportunities. Despite the innovations and projects carried out in the vocational and technical education process; educators and students face many problems in the process. The aim of this research is to examine the solution proposals for the problems experienced in vocational and technical education institutions in terms of management, program and application. In the research, the situation analysis design, which is among the qualitative research methods, was used. Focus group interview technique was used in order to examine the subject discussed in the research in detail. A semi-structured interview form was used as a data collection tool. As a result of the research, the main solution to the problems experienced in the management dimension in vocational and technical education institutions is to establish an effective control mechanism, to strengthen the education-employment-production relationship, and to take deterrent measures for the implementation of the Vocational Education Law No. 3308. As a result of the research, solution suggestions for the problems experienced in the dimension of the curriculum in vocational education are to adapt to the new generation teaching methods and techniques, to offer internship opportunities to students abroad, and to have the qualified manpower needed by the domestic and national defense industry. Finally, solution suggestions for the problems experienced in the implementation phase in vocational and technical education institutions are to make school and field preferences in certain time periods during the student placement processes, to limit these processes and to allocate sufficient quotas to the relevant institutions.

KEYWORDS: Solution Proposals, Technical Education, Vocational Education

1. Introduction

In today’s world, the ability of countries to develop in economic, social, cultural and technological dimensions is directly proportional to their well-equipped and qualified human resources. It can be said that the main factor that determines the training of human resources in a well-equipped manner, providing a competitive environment and reducing unemployment is the importance given to vocational and technical education institutions. Vocational and technical education institutions help to train individuals in a well-equipped manner, increase their employability level, and provide workforce in areas that countries need. Labor force is the part of the social population that has economic activity [1]. It is among the main duties of vocational and technical education to raise a sufficient number and quality of labor force in every field that our country needs [2]. Vocational education is the acquisition of knowledge, skills and application abilities required by a profession with social validity in order for individuals to continue their lives [3]. Vocational education is the process of reconciling
individuals’ cognitive, affective, social, economic and personal development with employability skills [4]. Vocational education can be defined as “an education process consisting of a balanced coordination of individual, profession and education parameters” [5]; on the other hand, it can also seen as “using the profession as a tool while developing the skills of the individual and increasing the knowledge and skills in this process” [6].

Countries provide the workforce they need through vocational education and update their vocational education systems in line with changing needs [7]. The requirements of the period in this update process are shaped within the framework of technological developments and informational transformations [8]. While developed countries proactively change their vocational education programs in accordance with the needs of the age; it is seen that underdeveloped or developing countries do not realize this change process [9]. The main objectives of vocational technical education are; to educate and train individuals as qualified human resources for many employment areas, especially industry, trade and service sectors, and to provide the basic education necessary for transition to higher education institutions, which are the continuation of their vocational branches [10]. It is aimed to specialize individuals in their own branches by carrying out theoretical and practical training in vocational and technical education institutions [11].

Turkey is among the countries with a young population with a high workforce capacity. One of the most important conditions for our country to benefit from the demographic opportunity it has; young people who will join the workforce must go through a training process where they can have the necessary equipment to be employed in a way that can come to the fore in national and international competitive markets [12]. Vocational education institutions undertake the responsibility of raising qualified, equipped, entrepreneurial and productive generations that can be employed in the sectors needed in today’s world [13]. Education programs of institutions providing vocational and technical education are structured in line with the needs of the sectors and 21st century skills [11]. The most important issues to be considered in terms of institutions providing vocational and technical education are; it is the practical implementation of enriched trainings in the light of sectoral needs with on-the-job learning methods and the provision of international equivalence of diplomas [14]. Vocational and technical education needs to be redesigned and redesigned with a dynamic structure in order to achieve the aim of raising qualified personnel who can contribute to production [13]. For this reason, the need for educational reforms to update vocational and technical education processes is increasing [15]. Many researches are carried out, policies are formed and projects are carried out in order to ensure the quality in vocational and technical education, to establish the technological infrastructure and to ensure modernization. In the recent past, the most important decisions for the improvement of vocational and technical education given in formal education institutions were taken at the 12th, 15th and 16th National Education Councils, and at the 15th National Education Council convened in 1996, it was recommended to update the education systems with a focus on vocational and technical education. In our country, which is aware of the necessity of having well-equipped manpower for economic development, the search continues to bring the quality of vocational and technical education to the next level, and many projects are carried out in this context [16]. Among these projects are the "School-Industry Joint (OSANOR) Project" that supports sectoral collaborations, the "Strengthening the Vocational Education and Training System (MEGEP) Project" that encourages vocational education to a systemic innovation, and the Erasmus+ projects that enable international learning mobility. The Vocational Education Law No. 3308 was established to regulate the principles regarding the training of apprentices, journeymen and masters, and vocational training to be carried out in schools and businesses. Within the scope of this Law, provincial vocational education boards are established in provinces in order to take decisions on the planning, development and evaluation of vocational education to be carried out in vocational and technical education schools, institutions and enterprises, also to provide opinions and recommendations to the governorship. The main purpose of the law is to transform vocational and technical education into a modern process enriched with technology; also to improve the personal rights of vocational education personnel and students.

Despite the innovations and projects carried out in the vocational and technical education process; Educators and students face many problems in vocational and technical education activities carried out in our country. First of all, it has been determined by many experts that there are negative prejudices against vocational education in our country [17]. The main reason for this situation is the inadequacy of vocational training and consultancy services [18]. In addition, there is a conflict between general education and vocational education due to social
and environmental factors, and families do not prefer to have their students study in vocational education institutions. The reason for this situation may be negative perceptions towards vocational education, not regular transitions between school levels, diversity in high school types, and insufficient emphasis on culture courses in vocational education. The high costs of vocational education and the inflexibility of education programs are among the obstacles to vocational and technical education [18]. The disconnection between vocational education institutions and sectors, the lack of practical training and the inability to carry out the apprenticeship system in a functional way are among the problem areas [19]. The fact that less talented students are admitted to vocational education institutions compared to general high schools and that schools cannot follow the technology used in the industry reduces the preferability of vocational and technical education institutions [20].

The aim of this research is to examine the solution proposals for the problems experienced in vocational and technical education institutions at the formal education level in terms of management, program and application. The research questions created in this context are as follows:

1. What are the solutions for the problems experienced in the management dimension in vocational and technical education institutions?
2. What are the solutions for the problems experienced in the dimension of the curriculum in vocational and technical education institutions?
3. What are the solutions for the problems experienced in the application dimension in vocational and technical education institutions?

2. Method

In the method section, there is information about the model of the research, the data collection tool and the study group.

2.1. Model of the Research

In the research, the situation analysis design, which is among the qualitative research methods, was used. The most basic feature of the situation analysis design is the in-depth investigation of one or more situations [21]. In this context, all factors related to a situation are handled in a holistic approach and how certain factors are affected by the relevant situation. Situation analysis is an empirical research method used in situations where the boundaries between the phenomenon and the context it is attached to are not clear and more than one source of evidence or data is available [22]. Situation analysis is a qualitative research approach in which the researcher examines one or more situations in depth with the help of data collection tools and defines situations and themes related to the situation [23]. The research is based on the cross-sectional survey model. Survey research, which is widely used in social sciences, is research that includes the opinions and attitudes of individuals about a phenomenon and event [24]. Focus group interview technique was used in order to examine the subject discussed in the research in detail. Focus group interviews are a data collection method frequently used in the field of social sciences [25]. Its practicality and usefulness are factors that are effective in the frequent use of focus group interviews [26]. The main element of focus group interviews is that they consist of few participants and participant responses are affected by group dynamics [27].

2.2. Data Collection Tool

A semi-structured interview form was used as a data collection tool. The form was developed by the researcher with the help of an expert. The most important convenience provided by the semi-structured interview technique to the researcher is that it provides more systematic and comparable information since the interview is carried out in accordance with the pre-prepared interview protocol [21]. In this research, a 3-item interview form focusing on the problems experienced in formal education institutions serving within the scope of vocational and technical education and the solution proposals developed for these problems was used. Interviewing is used as the shortest way to learn the knowledge, thoughts, attitudes and behaviors of individuals on various issues and their possible causes [28]. The main purpose of using an interview technique is not usually to test a hypothesis; it is trying to understand other people's experiences and how they make sense of these experiences [29]. The interview technique used in qualitative research is to use the perspectives of the people researched, to reveal their world of meaning, to see the world through their eyes [24].

2.3. Study Group

The study group of the research consists of a focus group of 20 people, consisting of school principals, workshop heads and teachers working in vocational and technical education institutions in the province of Elazığ. The study group of the research was formed based on the non-probability maximum variation method. The aim here is to reflect the sample diversity created in a way that addresses the research questions
in a multi-faceted manner. The aim is not to provide diversity to generalize; it is to try to find out whether there are common facts or differences among various situations and to reveal different dimensions of the problem according to diversity [21]. The demographic distributions of the participants in the study group are as seen in Table 1.

As seen in Table 1, the demographic characteristics of the participants were examined in terms of title, seniority and age variables. In the title variable, 50% of the participants are workshop chiefs. The main reason for this situation is that the workshop chiefs are at the forefront in the implementation phase, they are specialized in their fields and their sectoral cooperation is strong. 25% of the participants are school principals working in vocational and technical education institutions and 25% are technical teachers working in these institutions.

In the variable of seniority years, the majority of the participants consisted of educators with a seniority between 11 and 15 years (f=11). This shows that the majority of the participants have served long enough to specialize in their fields. In this way, it is thought that vocational and technical education institutions are competent in knowing their problems closely and producing solutions to these problems. 25% of the participants have 6-10 years, 10% have 1-5 years, 10% have 16 years or more years of service.

When examined in terms of the age variable, the majority of the participants are in the 41-50 age category (f=7). 30% of the participants are in the age range of 31-40, 15% are in the age range of 23-30, 15% are in the age range of 51-50. There are 5 participants aged 61 and over in the study group. When the age categories of the participants are examined, it is seen that they are generally in the middle age group.

2.4. Data Analysis

Research data were interpreted in line with descriptive analysis. Interpretation is the process of giving meaning to the analyzed data [28]. Descriptive analysis is carried out by transferring the answers of different individuals to the questions posed within the scope of the research, without changing them, in the form of quotations [21]. Descriptive analysis; it consists of the processes of establishing the theoretical framework, analyzing the data according to this framework, defining the findings and interpreting the findings [30]. While analyzing the data, in order to ensure confidentiality and impartiality, the participants in the focus group interview were given codes as K-1, K-2, ..etc. The answers given by the working group to the questions posed in the focus group interview were recorded and resolved, and analyzed by categorizing them according to the problem areas. These categories were ordered according to the number of citations of the participants, and percentiles and frequencies were determined. Problem areas were strengthened by showing striking citations from the participants as examples. During the data analysis process, categories and patterns were taken into consideration, the frequency of the variables was interpreted, the relationships between the variables were taken into account, and the variables were grouped according to their characteristics. The answers have been interpreted in a way that reflects the reality as it is, by establishing logical meaning chains. Because the most important problem of qualitative research is whether the meanings and results reached are correct, valid and repeatable [31].

3. Findings

The research findings were examined in terms of management, curriculum, and application dimensions.

3.1. Suggestions Regarding the Problems Experienced in the Dimension of Management in Vocational and Technical Education Institutions

The first question posed to the participants in the focus group interview was “What are your suggestions for the management problems in vocational and technical education institutions?” has been. The categories created for the answers given by the participants are given in Table 2.

As seen in Table 1, the demographic characteristics of the participants were examined in terms of title, seniority and age variables. In the title variable, 50% of the participants are workshop chiefs. The main reason for this situation is that the workshop chiefs are at the forefront in the implementation phase, they are specialized in their fields and their sectoral cooperation is strong. 25% of the participants are school principals working in vocational and technical education institutions and 25% are technical teachers working in these institutions.

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3. Findings

The research findings were examined in terms of management, curriculum, and application dimensions.

3.1. Suggestions Regarding the Problems Experienced in the Dimension of Management in Vocational and Technical Education Institutions

The first question posed to the participants in the focus group interview was “What are your suggestions for the management problems in vocational and technical education institutions?” has been. The categories created for the answers given by the participants are given in Table 2.
Table 2: Suggestions regarding the problems experienced in the management dimension in vocational and technical education institutions

| Category                                                                 | Frequency (f) | Percentile (%) |
|-------------------------------------------------------------------------|---------------|----------------|
| 1. Establishment of an effective control mechanism related to vocational technical education. | 10            | 25.65          |
| 2. Strengthening the education-employment-production relation in vocational and technical education. | 8             | 20.52          |
| 3. Taking the necessary deterrent measures for the implementation of the Vocational Education Law No. 3308. | 5             | 12.83          |
| 4. Carrying out incentive activities in order to increase the value attributed to vocational and technical education. | 5             | 12.83          |
| 5. Improving the institutional capacity by preparing projects in cooperation with the funding institution/organization. | 4             | 10.25          |
| 6. Development of educational environments and human resources. | 2             | 5.12           |
| 7. Selection of the branch managers responsible for the vocational and technical education branch in the provincial national education directorates from among the technical teachers. | 2             | 5.12           |
| 8. Student transfers are not weekly; scheduling monthly. | 1             | 2.26           |
| 9. Developing the professional competence of teachers. | 1             | 2.56           |
| 10. Carrying out necessary studies for vocational high schools to issue Vocational Qualification Certificates. | 1             | 2.56           |
| **Total**                                                                | **39**        | **100**        |

As can be seen in Table 2, the majority of the participants suggest the establishment of an effective control mechanism for the problems experienced in the management dimension of the vocational and technical education process (f=10). Auditing is a process of examining whether organizational activities are carried out in accordance with predetermined objectives. Participants state that the teaching activities carried out in vocational and technical education institutions are not effectively supervised and this situation creates an authority gap.

“*The biggest problem of vocational education is the control gap. The fact that the inspectors are far from the technical field further deepens the problem. Managers need to take steps in this regard.*”  K-12

As the participant with the code K-12 stated, the fact that individuals who have command of the field in the audit processes of vocational and technical education institutions and manage the process effectively will be able to reveal the problems experienced in the institutions and the activities carried out in an objective way.

Another solution proposal stated by the participants in the focus group meeting for the problems experienced in the management dimension is to strengthen the education-employment-production relationship (f=8). Stating that the most important elements of vocational and technical education are student employment and contributing to national production, the participants state that the organic bond between these elements should be strengthened.

“*The main purpose of vocational and technical education is to train human resources, to employ them and to ensure sustainability in production. Unfortunately, I think that employment and production dimensions are ignored in vocational education. At this point, managers should assume the biggest role and build a bridge between sectors.*”  K-3

As the K-3 coded participant stated, the main purpose of vocational and technical education organizations is to increase the employment power of individuals, to train needed intermediate staff and to support national production. The main way to achieve organizational goals is through effective leadership and management processes. It is recommended to take steps to strengthen the employment and production dimensions of institutions so that vocational and technical education can achieve its organizational goals.

Participants suggested that necessary measures be taken for the implementation of the Vocational Education Law No. 3308 in order to prevent the problems experienced in the management dimension (f=5).

“*The most important power of vocational high schools is the law numbered 3308. Unfortunately, the implementation phase is unsuccessful. Deterrent measures should be taken for the implementation of the articles in the law.*”  K-9

Vocational Education Law No. 3308; it aims to regulate the principles regarding the training of
apprentices, journeymen and masters, and vocational training in schools and businesses. It is thought that the problems experienced in vocational and technical education institutions will be greatly reduced with the implementation of the Law No. 3308, which determines the principles regarding vocational education and regulates the practices. The implementation and follow-up of the articles in the law should be carried out by the managers.

Participants stated that necessary studies should be carried out (f=5) to change the perceptions of stakeholders regarding vocational and technical education institutions in a positive way and that institutional capacity should be increased by carrying out project-based studies (f=4). They stated that it can be prevented.

3.2. Suggestions Regarding the Problems Experienced in the Dimension of Curriculum in Vocational and Technical Education Institutions

Within the scope of the research, the participants were asked, “What are your suggestions for the problems experienced in the scope of the curriculum in vocational and technical education institutions?” question was posed. The categories created for the answers given by the participants are given in Table 3.

Table 3: Suggestions regarding the problems experienced in the dimension of teaching programs in vocational and technical education institutions

| Category                                                                 | Frequency (f) | Percentile (%) |
|----------------------------------------------------------------------------|---------------|----------------|
| 1. Adapting to new generation teaching methods and techniques              | 14            | 24,56          |
| 2. Providing students with internship opportunities abroad                 | 10            | 17,54          |
| 3. Having the qualified manpower needed by the domestic and national defense industry | 10            | 17,54          |
| 4. To train professional staff needed by business people who invest abroad | 9             | 15,78          |
| 5. Coordinator teachers spend more time with students in appropriate enterprises while vocational training planning is carried out in enterprises | 5             | 8,77           |
| 6. Subjecting vocational teachers to practical training by individuals from the sector regarding their own fields | 4             | 7,05           |
| 7. Improving the content of applied training hours in vocational technical education institutions | 3             | 5,26           |

Participants mostly stated that “adaptation to new generation teaching methods and techniques” is required as a solution proposal for the problems experienced in the dimension of teaching programs in vocational and technical education institutions (f=14).

“The subjects and practices taught in vocational high schools and vocational training centers should be a new generation. Every school should have a 3D printer, but because the budget is not enough, outdated education is given in many schools.” K-1

The participant coded K-1 stated that new generation teaching methods should be used, but the institutional infrastructure required for this is not sufficient. Vocational and technical education centers are responsible for training human resources in line with the needs of the age. In order to train students with 21st century skills in accordance with the professions of the future, a contemporary education program should be adopted and practical training should be carried out in this direction. However, due to problems such as technological infrastructure, lack of budget and institutional capacity, the trainings cannot achieve the desired effect. As a solution to this situation, it is suggested that managers can provide funds to their institutions through projects, make use of simulation applications and eliminate existing deficiencies through technological opportunities.

“The curriculum is old and inadequate. In cases where the budget cannot be provided, applied trainings can be carried out through the internet and technology.” K-15

Participants think that providing students with internship opportunities abroad (f=10) and having the qualified manpower needed by the domestic and national defense industry (f=10) can be a solution to the problems experienced in the dimension of the curriculum.

“The internship abroad of the students studying in vocational education institutions develops their vision, enables them to specialize in their professions, and improves their self-confidence. In this way, negative
opinions towards vocational high schools can be eliminated.” K-7

“Great strides are being made in the field of defense industry in our country. In order for us to be able to provide support, we need to specialize in areas such as UAV and SİHA.” K-13

As stated in K-7 and K-13 coded participants, vocational and technical education institutions should be utilized effectively in order for our country to develop nationally and internationally and to strengthen economic development. Curriculum should be updated in line with new generation needs and have an enriched content. Participants also suggested that the curriculum should be renewed in line with the training of professional staff needed by business people who invest abroad (f=9) and that coordinator teachers should spend more time with students (f=5).

3.3. Suggestions Regarding the Problems Experienced in the Application Dimension in Vocational and Technical Education Institutions

The third question posed to the participants in the focus group meeting was “What are your suggestions for the problems experienced in practice in vocational and technical education institutions?” has been. The categories created for the answers given by the participants are given in Table 4.

| Category                                                                 | Frequency (f) | Percentile (%) |
|--------------------------------------------------------------------------|---------------|----------------|
| 1. When placing students in the 9th grades, school and field preferences are taken at the same time and the student is placed in an early period. | 8             | 21,62          |
| 2. Limitation of field and branch change operations.                     | 6             | 16,21          |
| 3. Allocating sufficient quotas to vocational technical education schools. | 5             | 13,51          |
| 4. Ensuring the planning of private vocational high schools in a way that does not allow the activities of official vocational high schools to be restricted. | 5             | 13,51          |
| 5. Limiting the placement of students subject to mainstreaming to vocational and technical education schools, taking into account the student's disability. | 4             | 10,81          |

As can be seen in Table 4, the majority of the participants stated that while placing students in the 9th grades as a solution to the problems experienced in the vocational and training centers, the choice of school and field should be taken at the same time and the placement of the student should be ensured in the early period (f=8).

“The choice of school and field should be made at the same time. We are late in choosing a field and this causes the child to specialize in his branch late.” K-20

As can be understood from the participant's views, making field choices late may cause students to have problems with their task specialization, and this situation poses an obstacle for students in the application phase. The participants also stated that field and branch changes should not be made continuously and that it is essential to limit this issue (f=5).

“Until the end of the 1st term of the 9th grade of the field change procedures; branch change procedures must be carried out until the end of the 1st semester of the 10th grade. Thus, arbitrary transactions are prevented.” K-14

Participants also stated that sufficient quotas should be allocated to vocational technical education schools (f=5) and that plans for private vocational high schools should be provided in a way that would not allow the activities of official vocational high schools to be restricted (f=5).

“The quotas of secondary education institutions providing general academic education should be limited and sufficient
quotas should be allocated to vocational and technical education schools.” K-10

“While planning for private vocational high schools, taking the needs of the province into account, giving the necessary opening approvals and ensuring that these schools are opened in a way that does not allow the activities of official vocational high schools to be restricted is the most valuable solution to prevent the problems experienced during the implementation phase.” K-19

As can be understood from the participant statements above, the participants think that vocational and technical education institutions do not have sufficient quotas and that private vocational high schools may restrict the activities of official vocational high schools. As a solution to this situation, they stated that quota plans should be made during the implementation phase and local needs should not be ignored.

4. Conclusions and Discussion

Vocational and technical education is of great importance in terms of ensuring the development of countries at national and international level, strengthening the competitive market, training qualified intermediate staff and increasing employment opportunities. However, it is known that, as in every organization, there are some problems in vocational and technical education institutions [32,33]. At the point of solving problems; Suggestions produced by individuals working in relevant institutions and experiencing the problems personally should be taken into account.

As a result of the research, the main solution to the problems experienced in the management dimension in vocational and technical education institutions is the establishment of an effective control mechanism. Auditing is a reflective management process that enables organizations to achieve their goals and creates a sense of trust among stakeholders [34]. In this context, it is very important to establish a strong control mechanism at the stage of examining the achievement of the objectives of vocational and technical education institutions. Strengthening the education-employment-production relationship in vocational and technical education is another suggestion that can prevent the problems experienced in the management dimension. In the management activities carried out in vocational and technical education institutions; it is necessary to pay attention to what the job market expects from vocational education and to focus on domestic production [35].

Another element of solving the problems experienced in vocational and technical education institutions in terms of management is to take deterrent measures for the implementation of the Vocational Education Law No. 3308. Law no. 3308 is a turning point in terms of vocational and technical education [16]. The proper implementation of this law is primarily the primary duty of individuals working at the management level. Incentive activities to be carried out by the managers at the point of preventing the negative prejudices that individuals attribute to vocational education are another measure that can prevent the problems experienced in vocational education.

Within the scope of the research, solution proposals for the problems experienced in the dimension of teaching programs in vocational education were examined. Adapting to new generation teaching methods and techniques, providing students with internship opportunities abroad, and having the qualified manpower needed by the domestic and national defense industry are among the solutions suggested by the participants. Highlighting the technical dimension in vocational education and the fact that teaching methods and techniques are not up-to-date are the biggest obstacles to the success of these schools [36]. In order to improve the skills of students studying in vocational and technical education institutions, modern teaching methods should be used, and they should be introduced to educational activities carried out abroad and existing professions [37].

The opinions of the participants on the solution proposals for the problems experienced in the implementation phase in vocational and technical education institutions were examined. In the student placement processes, making school and field preferences in certain time periods, limiting these processes and allocating sufficient quotas to the relevant institutions are among the suggestions made by the participants. The most important problem in front of the applications carried out in vocational education is the decrease in the tendency of students to prefer these schools [38]. In this context, directing students to vocational education and making school and branch changes in a systematic and limited way constitute a solution to the problems encountered during the implementation phase.

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