



## ORIGINAL ARTICLE

# Identifying the Effective Factors in Designing Curriculum of Vocation and Technique Courses in Junior Schools to Spot Talents and Precisely Select Skills and Occupations in Technical and Vocational Major

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### ABSTRACT

Knowledge is nowadays considered as a key factor for an educated and willing workforce to develop a country. In this regard, education ministry as a social and economic force is also highly significant. Therefore, developing proper skills, capabilities, and capacities is necessary in order to align education with nations' economic and technological changes so that facing new situations can be possible. The present study was aimed at identifying effective factors in designing curriculum of technical and vocational courses in junior high schools in order to spot talents and precisely select skills and occupations. Participants are consisted of 150 students who were randomly selected from among 2060 students majoring in building, wood industry, mechanics, and metal industries in 5 cities: Pakdasht, Neishaboor, Shahriyar, Babol, and Kermanshah, Iran. This study is a descriptive (survey) research. In so doing, data collection was carried out through a researcher-designed questionnaire that included 3 main question and 34 items, prepared based on Likert Scale. Reliability of the questionnaire was checked through SPSS 19.0 software such that an error of 5% was observed which was statistically significant. According to the high Cronbach's coefficient (.83) it can be concluded that the questionnaire was able to properly predict the variables. The results of the study showed that the students believed the content of vocation and technique courses was directed to train the skills but there was no conformity between the content of technical and vocation courses' curriculum and the students' choice of skills. Moreover, it was identified that the participants were not quite sure about identifying their skills and capabilities based on the existing curriculum of technical and vocation courses.

**Keywords:** technical and vocational education, curriculum of technical and vocational courses, students

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### INTRODUCTION

In today's world where knowledge and technology are growing with an increasing pace and as a result social relationships change, economy plays an essential role [1]. Consistent changes in labor market resulted from technological changes, gradual changes in regulations, market liberalization, and increasing labor demand make it necessary and critical to pay close attention to the role of education system of a country in training self-employing graduates. This role brings about some requirements for the society's education system. These requirements include training courses and the quality of administrating these courses, which are aimed at training able and expert forces, creating strong desire along with high work morale, developing the community in different aspects, and solving the problem of unemployment. The education system of every nation has special responsibility including enabling and liberalizing the individuals, and training and leading them to the labor market [2]. Therefore, nowadays the economic aspect of education system is highly significant and considered as one of the necessities for economic development and growth. An appropriate education system is essential to create required skills in the workforce [3].

In this regard it is necessary to create a new relationship between the education and the labor world so that cooperation and coordination between education sections, industries, and other different economic sectors are established, whereby general skills, moral of work, and skills pertinent to technology and

entrepreneurship are promoted [4]. Organic relation between occupation and education has been always taken into consideration in social and economic planning. In fact every education system should have an economic justification and result in economic growth, the greatest type of which is creating appropriate occupation for the students [5]. Nowadays, nations are trying hard to establish systems for individuals' job preparation in order to optimally utilize their resources [6]. Job and technical opportunities in education ministry are an inseparable part of the general training. Considering the present circumstances, it should be noticed that paying attention to precise technical and vocational training is one of the most important ways to create job opportunities and resolve the problem of unemployment. Therefore, lack of sufficient investment in skill training can be considered as ignorance and ruin of human resource in a nation. As a result, developing technical and vocational education is among the most important needs of a nation because a trained workforce is one of the factors affecting the nation's growth and development [7]. Technical and vocational education is basically defined as those trainings that prepare the individual for an occupation or enhance his efficiency and capability to accomplish one. Shortness of its periods and high flexibility toward instant needs of the market are among the specifications of technical and vocational education [8]. Such education is a combination of knowledge, technic, and art and has a developing theme because technical and vocational trainings have a flexibility which is originated in from the market's characteristics and economic conditions of a nation and they are able to provide students with abilities required by occupations, they have a significant role in employment. The aim of such trainings is to enhance capabilities, skills, and individuals' understanding and accomplish the work more appropriately within their occupation responsibility limit [3]. Moreover, technical and vocational education plays an important role in establishing human capital through training a proficient workforce needed by the market in different countries around the world. In developing countries, such education is not only utilized to train required workforce in different economic sectors but it also helps to solve the problem of unemployment. In addition, such trainings can be considered as a shortcut for training the workforce. On the other hand, combining these trainings with technical and practical courses provides the students with this opportunity to align more and more with needs of labor market, whereby a greater chance for them to be absorbed to social-economic activities will be achieved [9]. Therefore, according to the phenomenon of globalization and its extensive effects on all aspects of life, remarkable progress in terms of technical and vocational training effectiveness is required [10]. In justifying and emphasizing the important role of skills in designing curriculum, George Sakhar and Puls have analyzed the social and private outcomes of different fields of study in different countries and concluded that enhancing conformity between educational system and economic needs in developed countries is related to that system's tendency to vocational training [8]. Therefore, it is needed that a new relation between education and occupation world to be established so that cooperation and coordination between education, industry, and other economic sections can form, whereby general and technical skills spread in society [4]. Increasing growth of human knowledge makes the educational system discover new methods to teach students different skills [11]. Nowadays, education ministry is considered not only as a means to enhance productivity but also as an effective tool to extend and enhance democratic cooperation and improve people's individual and social life quality [12]. Therefore, choosing appropriate concepts and educational materials among from the extensive repertoire human knowledge and presenting them in the form of text books are among the most important issues to be coped with by the educational ministry all around the world [11]. Among the component elements of curriculum, a special place should be devoted to the content so that curriculum is sometimes considered as the content [13]. In Iran's educational system, content is also presented in most text books which are the pivot of education and learning. Educational content, books, and curriculum play a significant role in establishing an appropriate relationship between technical and vocational trainings and industries' needs [14]. In this regard, development of technical and vocational skills and permanent enhancement of learning have officially been regarded as a national strategy in most developed countries; among these countries are Japan and the USA [15]. Therefore, it seems highly important that chief policymakers should understand economic and industrial changes and clarify how educational system can be adapted to new circumstances. This issue can be effective to a large extent in reducing worries about the graduates' extensive unemployment. An efficient and proficient workforce is required in order to meet the market's needs. Therefore, in most developed and developing countries special attention is devoted to the issue of education. Lesson designers present curriculum. Curriculum can guide students toward appropriate occupations. These plans are aimed at conducting special trainings and equip students with innovation and creativity which in turn lead to thorough knowledge growth in students. Flanders states that curriculum is like blood and life flow and teaching methodologies and text books' content are bases on which lesson plan is established. Curriculum needs to be changeable and it should meet the students' occupational needs [16]. Vocation and Technique course is currently one of the subjects taught in junior school. In other

countries it is given different names such as technology, life skills, housholding technique, etc. It is one of the courses that familiarize students with their future routes of education and available jobs and occupations. Its content, as opposed to those of other subjects which focus mainly on a single topic, deals with different topics and has content diversity. Vocation and Technique course follows two major goals: first familiarizing students with different fields of study and occupations, and second teaching them technical and practical skills through handling tools and devices while making things [17]. However, achieving these goals depends on administrative facilities like experienced teachers, equipped workshops, and required materials and tools. By teaching vocation and technique course effectively and guiding students appropriately toward labor market, the foundations of students' future occupation will be founded. It is believed that encouraging and motivating students to enter technical and vocational branch in high school should begin from junior school and in vocation and technique classes. Considering documents related to 20-year perspective and especially the fourth 5-year responsibility planning, students' part to enter technical and vocational branch is determined, whereby curriculum designers, teachers, and students' responsibilities are heavier than before because today's students will be future scientists, researchers and innovators. Since the world of technology gets more and more complex, future innovators need to have multiple skills which enable them to analyze well, interpret well, and apply data in different systems well. Therefore, from now on our schools should respond to such multiple needs. The curriculum of Vocation and Technique course enhances students' spirit of working through practical and skill plans so that they could meet their everyday needs discover sufficient ways to resolve the problems using the available facilities.

Some studies have been conducted to specify factors affecting how students pick up study branches and ways determining how to absorb talented students. Gudarzi In a study, he stated that individual and personal factors such as interest in practical courses, awareness about vocational and technical courses, and curiosity about tools' mechanism are affective in picking technical and vocational study branches by students [18].

In their study, Nowruzzi and Barzegar concluded that there was not a 100% conformity or 100% nonconformity between specialized books of Manufacturing and Production major and industry. However, they found that all of the books more or less needed to be revised [14]. Salimifar and Mortazavi concluded that technical and vocational trainings had succeeded greatly in training proficient workforce (human capital) and self-employed human force (entrepreneurs) could play an important role in developing human capital. Their greater success; however, requires more serious attention to dimensions of motivation, equipment, training, content, and structure [9].

The results of Shirvani's study show that there is a significant relation between quantity and quality enhancement of training courses and positive attitude of the society and the youth toward curriculum [19]. In their study, Abdollahi and Sadatmand showed that there was an average correlation between vocational and technical trainings and the curriculum which included goals, content, evaluation; the highest correlation was related to the methodology and the lower to evaluation [5].

Uzmangolu *et al* conducted a study titles evaluation of educational and technical structure in school. They concluded that ability to analyze the occupation, responsibility acceptance in a job, performance, and mastery in theoretical knowledge are among strengths of curriculum and lack of information, work discipline, individual improvement, and lack of experience are its weakness. Inclusion of content related to problem solving, thinking skills, responsibility acceptance, individual management, sociability, and self-esteem are introduced to compensate for weaknesses [20].

Cully believes that by developing skill trainings in schools, students can be encouraged to learn skills. Moreover, skill training can create occupations; and job opportunities can be enhanced [21].

Investigations mentioned above; however, show that there should have been a more appropriate relation and coordination between curriculum and human force in occupation and educational planning sectors. More exactly, a more precise relation should be established between developing educational system and training human force required by the market. Since developing skill training and teaching technical and vocational skills are close to the market, it is possible to be able to solve the problem of unemployment in the society. In addition, nowadays vocational and technical training is the major need, without paying attention to which economic and industrial development will be farfetched.

The curriculum of Vocation and Technique course with a practical skill training approach is considered as the key text book that plays an important role in evaluating the level of conformity between the market's needs and absorption of students to technical and vocational fields of study. In this regard, the present study was aimed at replying the following questions:

1. To what extent is the content of vocation and technique course applied to train skills?
2. Is there conformity between the curriculum of vocation and technique course and the students' choice of skills?

3. To what extent, does the content of vocation and technique course play a significant role in identifying students' talent for skills?

## METHOD

This study is a descriptive (survey) research. Participants are consisted of 150 students who were randomly selected from among 2060 students majoring in building, wood industry, mechanics, and metal industries in 5 cities: Pakdasht, Neishaboor, Shahriyar, Babol, and Kermanshah, Iran. To conduct data collection, a researcher-designed questionnaire that included 3 main question and 34 items based on Likert Scale was utilized. To check the validity of the questionnaire, three field specialists' views were applied. Reliability of the questionnaire was checked through SPSS 19.0 software such that an error of 5% was observed which was statistically significant. According to the high Cronbach's coefficient (.83) it can be concluded that the questionnaire was able to properly predict the variables. Collected data were analyzed through one-sample t-test.

## RESULTS

**The first question:** To what extent is the content of vocation and technique course applied to train skills?

**Table 1. One Sample Assessment related to the Relation between Vocation and Technique Course Curriculum and Skill Training**

The First Study Question	Number	Observed Mean: $X_o$	Expected Mean: $X_E$	Mean Difference: $X_o - X_E$	df	One-sample T-Test	Sig.
Investigating Skill Training	150	49	48	1	149	3.4	$P < 0.01$

The results of one-sample t-test show that the difference between the observed mean and the expected mean ( $X_o - X_E = 49 - 48$ ) on an error level of less than 1% is statistically significant ( $t=3.4$ ,  $df= 149$ ,  $p < 0.01$ ). Therefore, because the observed mean is higher than the expected mean, the participants believe that the content of the educational curriculum for Vocation and Technique course is in line with skill training.

**The second question:** Is there conformity between the curriculum of vocation and technique course and the students' choice of skills?

**Table 2. One Sample Assessment related to the Conformity between Vocation and Technique Course Curriculum with Students' Choice of Skills**

The Second Study Question	Number	Observed Mean: $X_o$	Expected Mean: $X_E$	Mean Difference: $X_o - X_E$	df	One-sample T-Test	Sig.
Conformity between Curriculum and Skill Choice	150	30.9	33	-2.1	149	-7.34	$P < 0.01$

The results of one-sample t-test show that the difference between the observed mean and the expected mean ( $X_o - X_E = 30.9 - 33 = -2.1$ ) on an error level of less than 1% is statistically significant ( $t=7.34$ ,  $df= 149$ ,  $p < 0.01$ ). Therefore, because the observed mean is lower than the expected mean, the participants believe that the content of the educational curriculum for Vocation and Technique course is not in line with the students' choice of skills.

**The third question:** To what extent, does the content of vocation and technique course play a significant role in identifying students' talent for skills?

**Table 3. One Sample Assessment related to the Evaluation of the Vocation and Technique Course Content to Identify the Students' Talent for Skills**

The Third Study Question	Number	Observed Mean: $X_o$	Expected Mean: $X_E$	Mean Difference: $X_o - X_E$	df	One-sample T-Test	Sig.
Identifying Skill Talent	150	24.22	24	0.22	149	0.884	$p > 0.01$

The results of one-sample t-test show that the difference between the observed mean and the expected mean ( $X_o - X_E = 24.22 - 24 = 0.22$ ) on an error level of less than 1% is not statistically significant ( $t=0.884$ ,

df= 149,  $p>0.01$ ). Therefore, because the observed mean is higher than the expected mean and being non-significant in the participants' view, the content of Vocation and Technique course of junior school is unable to spot students' talent for skills.

## DISCUSSION AND CONCLUSION

Technology progress, market's needs, and increased unemployment in societies necessitate technical and vocational trainings and students' skill learning on different educational levels more than before. In this regard, the most important issue is identifying skill trainings and their role in a nation's development and designing course materials and appropriate teaching methodologies. Because technical and vocational trainings have a flexibility which is originated in from the market's characteristics and economic conditions of a nation and the able to provide students with abilities required by occupations, they have a significant role in employment. There is no doubt that a bridge should be established between school and industry in order to develop skills required by the market. In this situation, one of the most important responsibilities that the educational system of every country should shoulder is to train specialist and proficient human force needed by the society through education curricula. The curriculum of Vocation and Technique course is one of the curricula which is aimed at familiarizing students with occupations, doing practical activities, and learning the work process. However, because there is a lot of criticism on the education methodology for the graduates' employment, some scholars believe that appearance of new complicated skills in the field of occupations and extensive rapid changes in technology has resulted in revising teaching methodologies and changing the content and the curriculum in accordance with social and market's changes. In this regard, the results of the present study are used to modify the content of Vocation and Technique course so as to train skills. Vocation and Technique course is the only curriculum which is extensively related to technical and vocational fields of study where one of the students' major needs is to gain individual qualification and practical skills. The special approach of this course is based on the "skill-practical" study skill guide. This course involves students with simple processes of work through handling materials and tools and put them in quasi-education situations in technical and vocational centers. However, there is not conformity between the curriculum of Vocation and Technique course and the students' skill choice. That is, unlike past expectations the curriculum of Vocation and Technique course has not been able to provide students with chances to familiarize students with vocational and technical skills and interest and it has failed to encourage them to enter these fields of study. Among weakness that the curriculum Vocation and Technique course in junior schools are weak lesson plans and teaching methodology, lack of equipment and educational facilities and also lack of qualified teachers. To resolve these problems and complete the cooperation between vocational and technical trainings and the curriculum Vocation and Technique course some points can be mentioned such as: adapting vocational and technical trainings to the curriculum Vocation and Technique course, enhancing the quality and quantity of education, improving education environment, making the education more specific in period before high school, and organizing the content of the text books based on structural changes of industry and demands in professional trainings. Nowadays, importance and role of technical and vocational trainings as a factor of development and a means of substantiation of economic, social, and cultural plans are not hidden to anyone. Therefore, it is necessary to encourage students to enter vocational and technical fields of study by involving concepts and skills related to the curriculum of the text books. As a result, the future curriculum design needs to be carried out in a way that it involve students in different ways, boost their thinking ability, and teach them different skills.

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