Effective model of technical and vocational education on the labor market

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Abstract

This mixed study aimed to propose a cooperation model between the labor market and technical and vocational education using an exploratory method and structural equation model. The qualitative population included university professors and experts in education and business management, as well as experts in technical and professional organizations, who were selected by a non-random and purposive snowball sampling method (10 people). The statistical population was 1371 principals of technical and vocational schools in West Azerbaijan province, employers, and managers of production and service units located in West Azerbaijan province. The sample size was estimated as many as 300 people using Morgan Krejcie's table. The interview and a researcher-made questionnaire according to the outputs of the interview section were used to collect data. A total of eight components and 70 indicators were identified and finally approved by experts to present the model. Technology, human resources, skills training, entrepreneurial attitude, job training, entrepreneurial behaviors, job opportunities in the labor market, and career path in the labor market were identified as dimensions in developing a suitable model for measuring the cooperation between the labor market and technical and vocational education. According to the results, all the relationships between the model variables were confirmed because the significant number of paths between all variables was greater than 1.96, and the significant levels were less than 0.05 and even 0.01.

Keywords: Technical and vocational education, Technical and vocational organization, Labor market, Exploratory approach
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1 Introduction

Unemployment is one of the chronic complications of Iran, which can be considered one of the most frightening economic problems. Many social, economic, and even political problems are originated from unemployment [16]. Entrepreneurship and skill-based education are among the ways to understand occupational opportunities in the labor market and solve the problem of unemployment [11]. Preparing young people for the labor market is one of the

critical responsibilities of countries' education systems. Increasing the level of skills enhances the economic potential of countries by increasing investment in vocational-technical education.

Labor training has significant benefits for the economy through increased productivity (UCES[1]). Social mobility of young people and reducing their unemployment rate are among the positive aspects of technical and vocational education and internships. Advanced technical and professional programs increase economic competitiveness, but many of these programs have failed to meet the needs of the labor market and do not adequately prepare young people for jobs. On the other hand, technical-professional programs have distanced themselves from the modern and changing world of economics. Technical and vocational training can significantly form human capital and train knowledge-oriented workers due to theoretical and practical training [10]. In other words, technical and vocational training have short or medium efficiency [6]. Despite job opportunities in agriculture, services, manufacturing, and handicrafts, considering the appropriate business environment in the geographical location and bordering neighboring countries to create job opportunities in the province of West Azerbaijan, the average unemployment rate is 14.6%. Moving from credentialism and educational inflation to skills training can solve the unemployment problem of more than 40,000 educated people and students in West Azerbaijan Province and provide a platform for business prosperity. Currently, 70% of the unemployed have not learned skills, or their skills do not match the needs of regional businesses [12]. Youth skills training is often not based on labor market needs assessment and people choose technical, and vocational training based on other criteria such as personal interest, which causes a significant percentage of job seekers to face serious problems when looking for a job. Human resources can quickly enter businesses and engage in entrepreneurship and business production with skills training tailored to the needs, and many unemployed people may have jobs. Skills development proportional to the needs of the labor market plays an essential role in employment growth and entrepreneurship in sustainable development. Today, many graduates are unemployed due to a lack of skills, and those in charge should identify the needs of each field professionally and provide employment opportunities for young people to reduce social harm [1]. Therefore, this study evaluated the appropriate cooperation model between the labor market and technical and vocational education.

2 Theoretical foundations of research

2.1 Technical and vocational training

Technical and vocational training includes activities to prepare people for a career or business or increase their efficiency and capability. This type of training leads to acquiring skills in technology and related sciences along with specific knowledge related to the occupations of various economic and social sectors. Quantitative and qualitative increase of training in the public sector cannot cover the broad needs of skills training in society. Therefore, the organization has implemented a particular program to attract the cooperation of free internship institutions to realize its plans for the current year (3 million people training).

Today, governments, employers, and workers are interested in technical and vocational education because of their role in distributing employment opportunities, increasing creativity and improving quality and competition, gaining appropriate and hygienic working conditions, and the possibility of social dialogue. Compared to other types of training, technical and vocational training shows more interest in the relationship between the contents and methods of this training and the changes within production and the world of work [13].

Technical and vocational training programs should have a variety and quality to choose the most suitable career path or technical field appropriate to the various talents. On the other hand, technical and vocational training programs strengthen and support the economic independence of the society, eradicate poverty and deprivation, meet human needs in the process of growth, and prevent foreign domination by providing specialized human resources and professional skills over the country's economy. The logical relationship between technical and vocational education and economic and social systems and its developments lead to a flexible and diverse approach to meeting the needs of individuals and society [13].

The phenomenon of educated unemployment in most developing countries entertain doubts about the quantitative and extensive expansion of the education system so that the problem can be justified by the quantitative and extensive expansion of the education system. As supply exceeds the demand for trainees, they are forced to accept jobs requiring lower levels of education. Therefore, the degree becomes a condition for obtaining a job rather than skills and training. Iran is no exception, and the unemployment of graduates in Iran is analyzed in the context of structural unemployment [7].

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[1] UK Commission for Employment and Skills

2.2 Technical and vocational education and labor market

Paying attention to the role of technical and vocational education in advancing economic programs, especially in terms of appropriate human resource supply, is one of the reasons for numerous changes in educational systems in most countries. The educational modifications worldwide aim to reduce the gap between the two educational systems and the economy. Therefore, trying to establish a connection between the educational system and the economic system of society and linking education to the world of work, both in school programs and in extracurricular activities such as internships and apprenticeships, is one of the crucial issues facing the officials and decision-makers of each society. For this reason, education is an effective factor in terms of the employment of young people in society. In addition, the connection of technical and vocational education with the needs of the labor market is essential and is emphasized as the right policy in the effort to reduce the unemployment rate among young people [8].

Abdollahi showed no effective mechanism to establish a relationship between technical and vocational education and the labor market. Khanipour et al. [9] stated that a very effective step can be taken in developing human resource employment by providing informal technical and professional training and formal higher education under Advanced Skills Development centers. Acquiring skills is one of the essential goals in the technical and vocational education organization of the country. In this regard, a comprehensive system of skills and technology was designed in three parts, in which training has a reciprocal effect in promoting the interests of individuals, businesses, the economy, and society, especially in the critical challenges of employment, poverty eradication, social insurance, and supporting economic growth. Fazeli Kebria et al. [5] investigated the promotion of the interests of individuals, businesses, the economy, and society, especially in the critical challenges of employment, poverty eradication, social insurance, and supporting economic growth. According to their results, technical and vocational universities will be successful in achieving the long-term goals by updating the course heading based on the needs of the industry, increasing practical courses, increasing bachelor courses, increasing the experience of professors in providing skills, and attracting cooperation between factories and large industries, updating e-learning, training based on job-creating and business skills training, creating new and up-to-date courses required by the industry to find a job. Moghimi et al. [11] conducted fundamental and qualitative research using the data theory of the foundation with the Glaserian approach, showing that the most critical concern of the interviewees is the lack of skills in individuals. Therefore, the skill acquisition with the main categories of financial resources, human, education, training center, organization, and family, was determined as the major research category. Irina Vasilyevna Terentyeva et al. [15] conducted a study to establish management processes for the formation and optimal use of human resources, including 300 professors, 400 students, and 100 employers, as efficiency criteria for cooperation between the labor market and the vocational training system in Russia. The research showed that the characteristics of national models and global tools for cooperation between vocational training institutions and companies are constructive. Deutscher and Winther [4] found that trainees' performance on the test of professional knowledge and ability during vocational training is significantly improved, which helps trainees acquire the competence to work in a specific field.

3 Method

This applied and developmental was conducted using a mixed research method (qualitative-quantitative) of exploratory type. Interview tools were used to collect information in the qualitative part, and a researcher-made questionnaire was utilized for the outputs of the interview. A three-step process of open, axial, and selective coding was applied based on the Grounded theory using MAXQDA.Pro2018 software to analyze the data obtained from the interviews. The structural equation model was used to test the primary model and examine the role of cooperation between the labor market and technical and vocational education with the help of SmartPLS3 software.

The formal validity of the questionnaire was approved by several experts, supervisors, and consultants to calculate the validity of the questionnaire. The content validity of the questionnaire before and after the pre-test is approved by supervisors and consultants, technical professors, and experts. Factor loads, composite reliability, mean-variance extracted, and Cronbach's alpha coefficient of all structures and their dimensions were investigated, indicating sufficient and appropriate reliability of research structures. The factor load of all items (except items No. 1, 8, 11, 17, 20, 21, 25, 27, 28, 30, 32, 52, 53, and 70) are above 0.5, and their t-value is greater than 1.96, and significant levels are less than 0.001. Therefore, the remaining items have been analyzed, confirming the sufficient and appropriate reliability of the research structures. The validity of the components of all items has the highest factor load on their structure, indicating the divergent validity of the structures to the appropriate extent.

The study population in the qualitative stage includes university professors and experts in education and business management, experts in technical and professional organizations with master's degrees and higher, employers and managers of production and service units with at least five years of management experience located in West Azerbaijan

province. Qualitative sampling is based on theoretical data saturation. The research sample selection is based on the non-random and purposive snowball method (10 people). The statistical population of the quantitative stage of the research includes all principals of technical and vocational schools in West Azerbaijan province, employers, and managers of production and service units located in West Azerbaijan province (1371 people). The sample size was considered 300 people from the target statistical population using Morgan and Krejcie table by stratified random sampling (due to having two layers).

Table 1: The statistical population in the qualitative stage

No.		Number of statistical samples
1	University professors and experts in educational management and business Experts of technical and professional organizations with master's degrees and above Employers and managers of production and service units with at least five years of management experience (Based in West Azerbaijan province)	10

Table 2: The statistical population in quantitative sections by category

No.	Category namr	Number of statistical populations	Sample
1	Principals of technical and vocational schools	271^2	59
2	Employers and managers of production and service units	1100^3	241
	Total	1371	300

The experts' questionnaire questions were designed based on theoretical foundations. Open, axial, and selective coding was done after collecting interview texts using MAXQDA.Pro2018. Indicators, components, and conceptual models were extracted at this stage. Then, a questionnaire was designed and approved in 3 stages of Delphi and distributed in the research field. The data extracted from the questionnaires were entered and classified in Excel software. Confirmatory factor analysis and general model confirmation were used in structural equation modeling using Smart PLS 3 software to analyze descriptive statistics to test the validity of the structure and structure of the questionnaire questions.

4 Results

The qualitative research strategy is considered the basis of work because there is a lack of theoretical foundations to understand the essential indicators related to the problem and their relationship. This study aimed to provide a model of cooperation between the labor market and technical and vocational education using content analysis, as well as open and axial coding to identify the components and indicators of the model. The case study was the Technical and Vocational Organization and the labor market of West Azerbaijan Province.

The interviews with the experts were fully implemented in written form in MAXQDA.Pro2018 and re-read several times to gain a complete understanding. Then, the central theme and concept were conceptualized from the interview phrases and texts of related articles. The initial indicators were extracted after the open coding step. In this stage, 74 initial indicators were extracted in the open or initial coding stage are as follows:

Table 3: Indicators of the initial coding stage

Component	Index	Index number	Index weight
Technology	Innovation and development	1	1
	Needs identification	2	1
	Transfer of science and technology from one generation to another	3	2
	Ancillary facilities	4	1
	Self-sufficiency	5	1
	Preparing people for life	6	1
	Transform knowledge into production	7	1
	Self-employment platform	8	1
	Acquisition of new knowledge and skills	9	2
	Transformation in the organization	10	1
Human resources	Trainings tailored to talent and interest	11	1
	Human capacity development	12	1
	Training knowledge-oriented workers	13	1
	Training of skilled forces	14	3
	Creating learning opportunities for employees	15	1
	Capacity building and staff empowerment	16	1
	Increasing human resource productivity	17	1
Skills training	Short and medium term returns	18	1
	Labor market needs assessment	19	2
	Unlock unemployment	20	1
	Meeting the needs of human resources	21	2
	Prevention of various social harms	22	1
	Creating a stable career	23	1
	Competitive atmosphere in the way of serving the people	24	1
	Upgrade potential economic power	25	1
	Development of personal potential	26	1
	Preparing people as productive members of society	27	1
Entrepreneurial attitude	Globalization and internationalization	28	1
	Eradication of poverty and deprivation	29	2
	Creating a technical background appropriate to different talents	30	1
	Variety and quality	31	1
	Presenting knowledge and skills	32	1
	Business production	33	1
	Skills training tailored to the needs assessment	34	1
	Looking for a job with an entrepreneurial attitude	35	1
	Optimal material consumption	36	1
	Increasing labor productivity	37	1
Vocational training	Matching academic disciplines and skills	38	1
	Efficiency and ability	39	1
	Alignment with labor market needs	40	1
	Creating job opportunities	41	1
	Making a productive life	42	1
	Providing programs and opportunities	43	1
	Creating favorable opportunities	44	1
	Increasing motivation for progress and self-esteem	45	1

	risk-taking in individuals	46	1
	Maintaining long-term economic benefits	47	1
	Learn ways to interact and build power	48	1
	Awareness of new insights and norms	49	1
Entrepreneurial	Behavioral context in the field of social dialogue	50	2
behaviors	Behaviors in social and labor relations	51	1
	Observance of the requirements of citizenship behaviors	52	1
	Respect for the rights of others	53	1
	Political and social participation	54	1
	Peaceful and purposeful competitive behaviors	55	1
	Reducing social harms	56	1
	Improving the quality of training	57	1
	Provide the ability to interact and cooperate with executive agencies	58	1
Capabilities and	Training skilled and efficient people	59	1
job opportunities	Establishing an application system of professional quality standards	60	1
in the labor market	Creating long-term job and employment opportunities	61	2
	Expansion of national civilization and global citizenship	62	1
	Active interaction in world affairs	63	1
	Realization of the idea of citizenship	64	1
	Having special capacities	65	1
	Benefit from capabilities	66	1
	Useful and worthy jobs	67	1
	Organization and participation between people	68	1
	Acquire communication skills	69	1
Career path in the	Acquire financial and accounting skills	70	1
labor market	Planning and setting goals	71	2
	Employment opportunities	72	1
	Identify the needs of each discipline	73	1
	Skills training through training	74	1

Table 3 shows the weighting of the indicators based on their repetition by experts. Therefore, any more weight index means that more experts have referred to that index with higher content validity. The categorization of the axial coding is based on the study of previous research, sufficient knowledge and theoretical mastery of the subject under study, and the acquisition of insight to find commonalities of indicators around a specific axis. At this stage, eight components were approved and classified by experts as described in the previous figure (Technology, Human resources, Skills training, Entrepreneurial attitude, Vocational training, Entrepreneurial behaviors, Capabilities and job opportunities in the labor market, Career path in the labor market). Selective coding was performed to show the relationships between the concept, dimensions, and components as MAXQDA.Pro2018 outputs (Figure 1).

The designed model was tested by the Delphi method after formulating a conceptual research model based on the concepts extracted from in-depth and semi-structured interviews. The Delphi process was performed in three rounds with ten experts with managerial backgrounds and sufficient knowledge. The Delphi method is a group process involving the interaction between the researcher and a group of identified experts collected through a questionnaire of expert opinions. The opinions of 10 experts were received in three stages by distributing a questionnaire as yes or no to assess the validity of the indicators and components in the Delphi process after open and pivotal coding. Finally, eight components and 70 indicators were approved by experts by assigning a 5-point Likert score according to the importance of each index (very low (1) to very high (5) considering the average basis ≥ 3. The results obtained from the Delphi triple stages and the indicators approved by the experts are summarized in the following table.

Figure 2 presents the paradigm model of cooperation between the labor market and technical and vocational education with the data theory approach of the foundation. The results showed eight general categories modeled in six categories (causal factors, contextual factors, intervention factors, strategies, pivotal phenomena, and consequences), cooperation between the labor market and technical and vocational education, and the relationship between its various dimensions.

According to Table 5, the second root mean-variance of all variables is more significant than their correlation
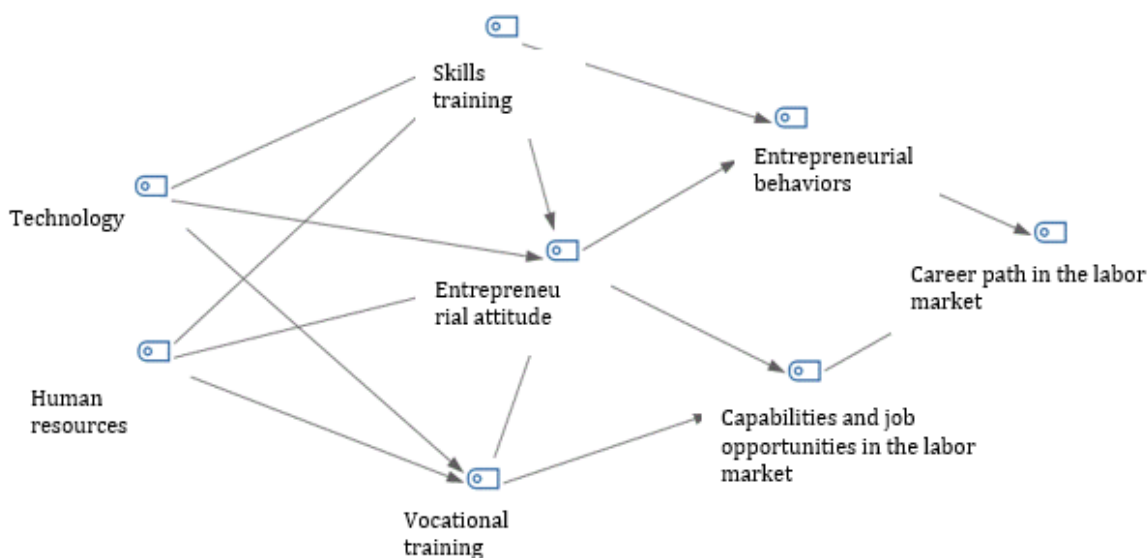
Figure 1: Selective (optional) coding in MAXQDA.Pro2018

Table 4: Summary of the three periods of Delphi research

Component	Index	Index number	Index weight
Technology	Innovation and development	1	1
	Identify needs	2	1
	Transfer of science and technology from one generation to another	3	2
	Ancillary facilities	4	1
	Achieve self-sufficiency	5	1
	Preparing people for life	6	1
	Transform knowledge into production	7	1
	Self-employment platform	8	1
	Acquisition of new knowledge and skills	9	2
	Transformation in the organization	10	1
Human resources	Trainings tailored to talent and interest	11	1
	Human capacity development	12	1
	Training knowledge-oriented workers	13	1
	Training of skilled forces	14	3
	Creating learning opportunities for employees	15	1
	Capacity building and staff empowerment	16	1
	Increasing human resource productivity	17	1
Skills training	Short and medium term returns	18	1
	Labor market needs assessment	19	2
	Unlock unemployment	20	1
	Meeting the needs of human resources	21	2
	Prevention of various social harms	22	1
	Creating a stable career	23	1
	Competitive atmosphere in the way of serving the people	24	1
	Upgrade potential economic power	25	1
	Development of personal potential	26	1
	Preparing people as productive members of society	27	1

with other variables. Therefore, the second criterion of divergent validity of research variables has been observed. The research hypotheses were tested using a structural equation model after determining the measurement models

	Globalization and internationalization	28	1
	Eradication of poverty and deprivation	29	2
	Creating a technical background appropriate to different talents	30	1
Entrepreneurial attitude	Variety and quality	31	1
	Providing knowledge and skills	32	1
	Skills training tailored to the needs assessment	33	1
	Looking for a job with an entrepreneurial attitude	34	1
	Optimal material consumption	35	1
	Increasing labor productivity	36	1
	Matching academic disciplines and skills	37	1
	Efficiency and ability	38	1
	Alignment with labor market needs	39	1
Vocational training	Creating job opportunities	40	1
	Making a productive life	41	1
	Providing programs and opportunities	42	1
	Creating favorable opportunities	43	1
	Increasing motivation for progress and self-esteem	44	1
	risk-taking by individuals	45	1
	Maintaining long-term economic benefits	46	1
	Learn ways to interact and build power	47	1
Entrepreneurial behaviors	Behavioral context in the field of social dialogue	48	2
	Behaviors in social and labor relations	49	1
	Observance of the requirements of citizenship behaviors	50	1
	Respect for the rights of others	51	1
	Political and social participation	52	1
	Peaceful and purposeful competitive behaviors	53	1
	Reducing social harms	54	1
	Improving the quality of training	55	1
	Provide the ability to interact and cooperate with executive agencies	56	1
	Training skilled and efficient people	57	1
Capabilities and job opportunities in the labor market	Establishing an application system of professional quality standards	58	1
	Creating long-term job and employment opportunities	59	2
	Expansion of national civilization and global citizenship	60	1
	Active interaction in world affairs	61	1
	Realization of the idea of citizenship	62	1
	Having special capacities	63	1
	Benefit from capabilities	64	1
	Useful and worthy jobs	65	1
	Ability to organize and participate among people	66	1
	Acquire communication skills	67	1
Career path in the labor market	Acquire financial and accounting skills	68	1
	Planning and setting goals	69	1
	Identify the needs of each discipline	70	1

to estimate the conceptual model of the research and ensure the existence or non-existence of a causal relationship between the research variables and evaluate the suitability of the observed data with the conceptual model. The critical value of the test based on the significance level of 0.05 should be > 1.96. In addition, values less than 0.05 for the significant level value indicate a significant difference between the estimated value for the regression weights with a zero value at the confidence level of 0.95. The output of the concept model using PLS software is shown in the following diagrams.

The impact factor of all routes is significant in the tested research model (Figure 3). Figure 1-4 shows the intra-circle numbers, variance of entrepreneurial attitude (0.709), career path in the labor market (0.667), job opportunities in the
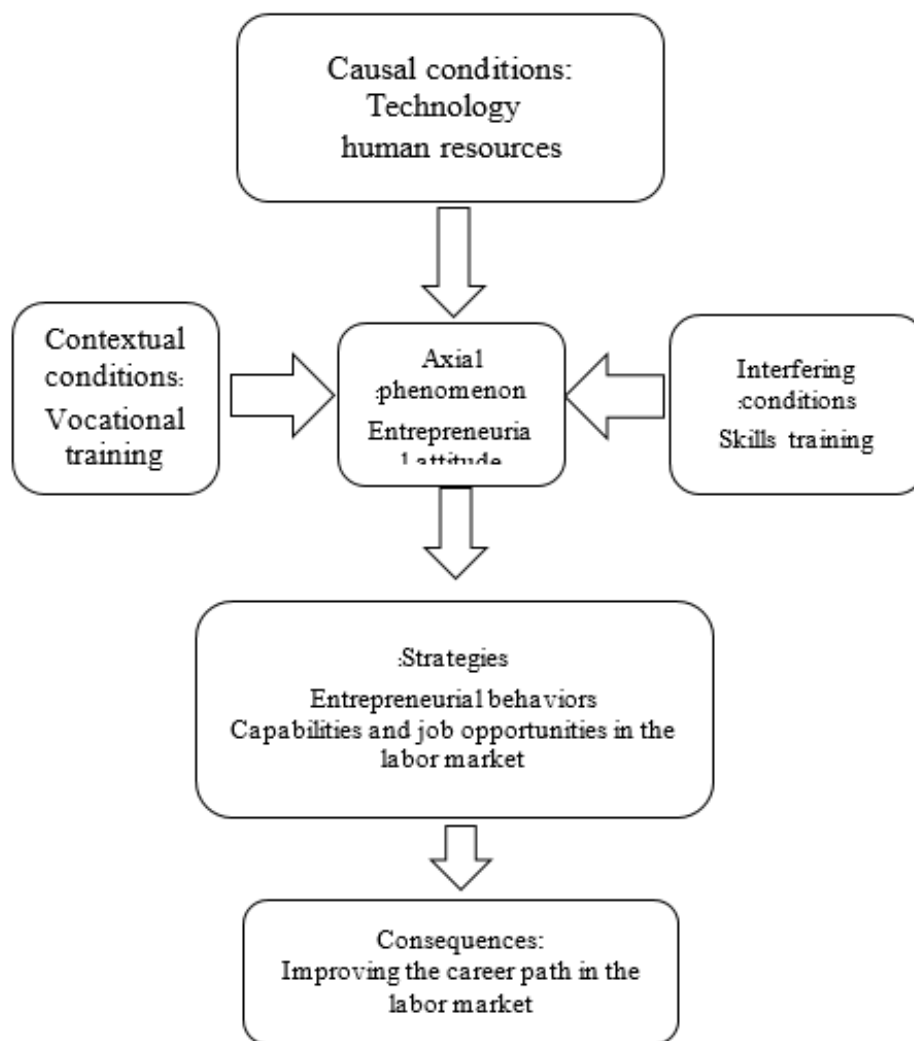
Figure 2: Conceptual model of research

Table 5: Correlation matrix and the square root of the mean-variance of the extracted variables

No.	Variable	1	2	3	4	5	6	7	8
1	Vocational training	0.766							
2	Entrepreneurial behaviors	0.730	0.772						
3	Technology	0.682	0.369	0.763					
4	Capabilities and job opportunities in the labor market	0.681	0.607	0.462	0.790				
5	Career path in the labor market	0.610	0.594	0.383	0.806	0.781			
6	Human resources	0.643	0.766	0.302	0.577	0.578	0.766		
7	Skills training	0.646	0.758	0.350	0.540	0.530	0.710	0.747	
8	Entrepreneurial attitude	0.776	0.680	0.596	0.596	0.558	0.662	0.710	0.74

labor market (0.383), skills training (0.524), entrepreneurial behaviors (0.566), and job training (0.657). In other words, about 71% of the explanations of entrepreneurial attitude are explained by the variables of human resources, skills, technology, and job training, respectively. In addition, 68% of career path changes in the labor market are explained by technology, human resources, skills training, entrepreneurial attitude, job training, entrepreneurial behaviors, and opportunities in the labor market. Generally, 57% of changes in entrepreneurial behaviors are explained by the variables of technology, human resources, skills training, entrepreneurial attitude, and job training. Moreover, 38% of changes in job opportunities in the labor market are explained by technology and technology, human resources, skills training, entrepreneurial attitude, and job training.

About 67% of changes in job training are explained by technology and human resources, and 52% of the changes in skills training are also explained by technology and human resources.
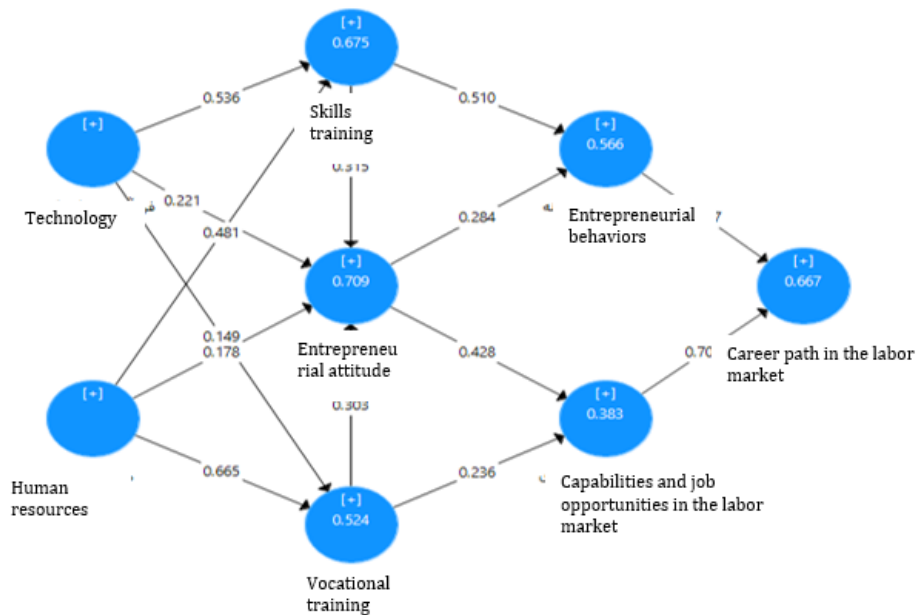

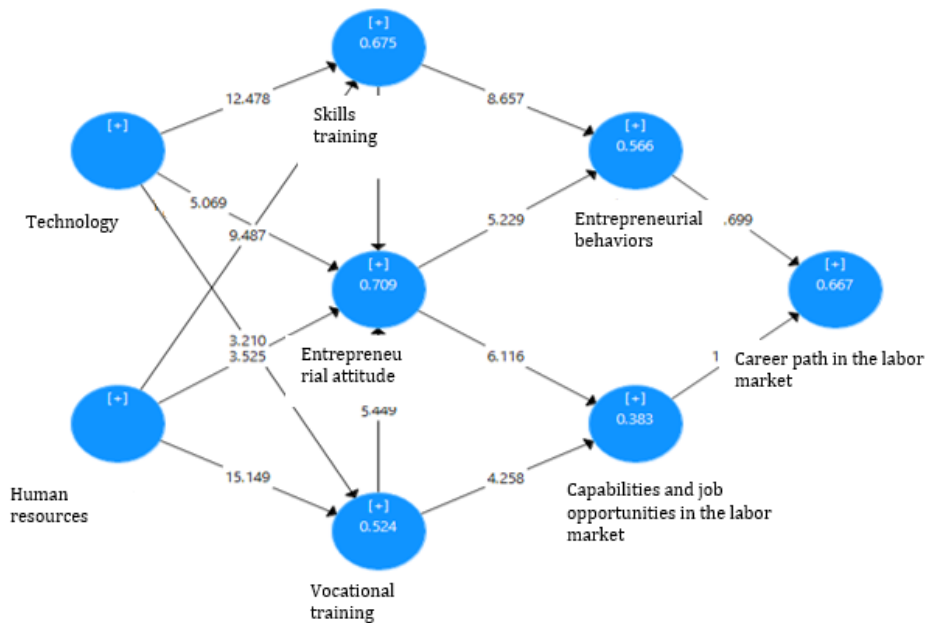Figure 3: General model measurement in standard mode

Figure 4: Model measurement after deleting 14 items in the significant state

According to the values of the coefficient of determination, the average coefficient of determination is equal to 0.587, and the average of common values is 0.437. According to the estimates, the overall fit of the model is equal to 0.506, which indicates a strong fit of the model according to the three values of 0.01, 0.25, and 0.36 as a weak, medium, and strong fit.

As shown in Table 7, the significant number of the path between all variables is >1.96, and the significance levels are <0.05 and even 0.01, which confirm all relationships.

Table 6: General model fit criteria

Variable	Common values	The coefficient of determination
Technology	0.460	-
Human resources	0.377	-
Skills training	0.377	0.524
Entrepreneurial attitude	0.379	0.709
Vocational training	0.461	0.675
Entrepreneurial behaviors	0.458	0.566
Capabilities and job opportunities in the labor	0.533	0.383
Career path in the labor market	0.448	0.667
Total	3.493	3.524
Average	0.437	0.587

Table 7: Significance of research model impact factor

Examined relationship	Estimated impact factor	T values	Significance level	Result
Technology <— Vocational training	0.536	12.478	0.0001	Confirmed
Technology <— Entrepreneurial attitude	0.221	5.069	0.0001	Confirmed
Technology <— Skill training	0.149	3.210	0.0001	Confirmed
Human resources <— Vocational training	0.481	0.487	0.0001	Confirmed
Human Resources <— Entrepreneurial Attitude	0.178	3.525	0.0001	Confirmed
Human Resources <— Skills Training	0.665	15.149	0.0001	Confirmed
Entrepreneurial behaviors <— career path in the labor market	0.167	2.699	0.007	Confirmed
Entrepreneurial Attitude <— Entrepreneurial Behaviors	0.284	5.229	0.0001	Confirmed
Skills training <—Entrepreneurial attitude	0.303	5.449	0.0001	Confirmed
Skills training <— Ability and job opportunities in the labor market	0.236	4.258	0.0001	Confirmed
Entrepreneurial attitude <— Ability and job opportunity in the labor market	0.428	6.116	0.0001	Confirmed
Vocational training <— Entrepreneurial behaviors	0.510	8.657	0.0001	Confirmed
Vocational training <— Entrepreneurial attitude	0.315	5.273	0.0001	Confirmed
Ability and job opportunity in the labor market <— Career path in the labor market	0.705	12.175	0.0001	Confirmed

5 Discussion

This study aimed to propose an effective technical and vocational education model for the labor market based on eight components and 70 indicators to provide a cooperation model between the labor market and technical and vocational education. According to the research model, the components of technology, as well as human resources, affected skills training, entrepreneurial attitude, and job training as causal factors based on Grounded theory. Similarly, entrepreneurial behaviors and job opportunities were also affected. The results also showed that the components of

entrepreneurial behaviors and job capabilities and opportunities determine a clear career path in the labor market.

According to the weight of the indicators, science and technology transfer from one generation to another, acquisition of new knowledge and skills, training of skilled workers, labor market needs assessment, responding to human resources needs, eradication of poverty and deprivation, context of social dialogue, creation of long-term job opportunities and employment, were able to take the most weight. According to the Grounded theory, causal conditions include technology and human resources; intermediate conditions include training; axial phenomenon includes entrepreneurial attitude. In addition, the contextual conditions include training, entrepreneurial behaviors, job opportunities in the labor market, and outcomes include career paths in the market.

According to the model process, the first stage of cooperation between the labor market and technical and vocational education begins with evaluating the factors and causes of cooperation and communication. Creative factors include technology (innovation and development, needs identification, transfer of science and technology from one generation to another, ancillary facilities, achieving self-sufficiency, preparing people for life, turning knowledge into production, building a platform Self-employment, acquisition of new knowledge, and skills and transformation in the organization) and human resources (training tailored to talent and interest, development of human capacity, training of knowledgeable workers, training of skilled workers, creating learning opportunities for employees, capacity building and training skilled human resources and increasing human resources productivity).

These results are consistent with those of Abdollahi and Saadatmand [2], Susani Gharibvand et al. [14], Moghimi et al. [11], and Irina Vasilyevna Terentyeva et al. [15].

The second stage is the contextual factors, which are categorized in developing a model of cooperation between the labor market and technical and vocational training as job training (matching academic disciplines and skills, efficiency and ability, aligning with the needs of the labor market, creating job opportunities, building a productive life, providing programs and opportunities, creating desirable opportunities and increasing motivation for progress and self-esteem). These results are in line with those of Bahadori Komijani et al. [3], Abdollahi and Saadatmand [2], Susani Gharibvand et al. [14], Irina Vasilyevna Terentyeva et al. [15].

The third step is to determine the type of cooperation model strategies between the labor market and technical and vocational training as entrepreneurial behavior strategies (risk-taking of individuals, protection of long-term economic benefits, awareness of new insights and norms, behavioral context in social dialogue, behaviors in social and labor relations, compliance with the requirements of citizenship behaviors, respect for rights Others, political and social participation and peaceful and purposeful competitive behaviors). In addition, capabilities and job opportunities in the labor market (reducing social harms, improving the quality of training, providing the ability to interact and cooperate with the executive apparatus, training skilled and efficient people, establishing an application system of professional quality standards, creating job opportunities and long-term employment, the expansion of national civilization and global citizenship, active interaction in world affairs, the realization of the idea of citizenship and the possession of exceptional capacities) are classified in developing a model of cooperation between the labor market and technical and vocational education. There is no cooperation model between the labor market and technical or vocational training similar to this step.

The fourth stage covers interfering factors in the success of the cooperation model between the labor market and technical and vocational training, including the short-term and medium-term return, labor market needs assessment, unlocking unemployment, meeting the needs of human resources, training to prevent various social ills, pave the way for the establishment of stable professions, competitive environment to serve the people, enhancing economic potential, growing potential personal abilities, and preparing individuals as productive members of society. This stage was not studied in any of the process models, but the factors are aligned with Moghimi et al. [11], Madad Karimi (1996), Soltani (2000), Abdollahi and Saadatmand [2], Susani Gharibvand et al. [2], Irina Vasilyevna Terentyeva et al. [15].

Selection of appropriate strategies for cooperation model between the labor market and technical and vocational training and their correct implementation leads to improving the career path in the labor market (Benefit from capabilities, useful and worthy jobs, ability to organize and participate between people, acquiring communication skills, acquiring financial and accounting skills, plan and setting goals and identifying the needs of each field). These findings are consistent with Moghimi et al. [11], Abdollahi and Saadatmand [2], Susani Gharibvand et al. [2], Irina Vasilyevna Terentyeva et al. [15].

In addition, the analysis results between the components showed that all relationships are significant and desirable (significance level >1.96).

Considering the importance of technical and vocational training, managers of this organization are recommended to consider contexts to create infrastructure, establish appropriate structures, and launch processes to improve technical

and vocational training. Furthermore, managers and those involved in the technical and vocational education system are suggested to prepare the necessary context for the growth and promotion of job skills under the above conditions and the culture of learning technical and vocational education based on background and theoretical foundations.

According to the results, there was a weak relationship between labor market cooperation and technical and vocational training. Therefore, special attention should be paid to technical and vocational training and the needs of the labor market. According to the current theoretical literature, technical and professional training and entrepreneurship should be measured to improve career paths in the labor market. Hence, paying attention to this critical issue is vital by developing related regulations and instructions in the Iranian educational system.

6 Recommendations based on the results

According to the results obtained from the research objectives, interviewing experts, weighting the indicators, and developing a model of cooperation between the labor market and technical and vocational training, the following are recommended:

1. According to the findings of the first question (technology and human resources) and considering the labor market as of the most efficient concepts of competitive management in universities and educational institutions, as well as the main factor of innovation and new services, achieving a more significant share of employment in the community by the students of the Technical and Vocational Education Organization can be a promise of effective training. Therefore, the factors of technology proportional to identified needs should be included in the list of courses held. In addition, the technical and professional organization can fill the educational gap in the labor market and university education in connection with the departments related to the university industry and by holding joint training courses.

2. According to the findings of the second question and skills training as intervention factors, the technical and professional organization should provide job opportunities resulting from the relationship with the labor market and the university, inform and coordinate with job agencies, training with the short-term education approach, the needs of the labor market and the provision of the necessary human resources to the target population.

3. The findings of the third question and the axial phenomenon named entrepreneurial attitude suggest considering entrepreneurship training among high school, university, and technical and professional organization courses as general education and specialized courses to create entrepreneurial attitude among graduates, educators, realizing potential talents, and choosing effective training. In addition, holding entrepreneurship workshops and seminars and personality tests of entrepreneurs to strengthen the entrepreneurial attitude of job seekers and those under training should be on the agenda of the technical and professional organization

4. According to the findings of the fourth question and vocational training as contextual factors (matching academic disciplines and skills, efficiency and ability, aligning with the needs of the labor market, creating job opportunities, building a productive life, providing programs and opportunities, creating desirable opportunities and increasing motivation for progress and self-esteem), talent identification tests should also be considered for academic guidance in choosing a field while reviewing university education under the needs of the labor market periodically, along with choosing a high school major. In addition, talent search tests should be included in the admission criteria when choosing a field and applying for fields without an entrance exam.

5. Based on the fifth question and strategies entitled entrepreneurial behaviors and capabilities and job opportunities, necessary training should be proportional to the needs of organizations and job conditions to prepare university graduates or job seekers after communication between organizations and technical and professional organizations based on training specialized human resources.

6. Regarding the sixth question (improving the career path in the labor market), public management and human relations training should be planned to strengthen the teamwork spirit and plan for a job position to improve the career path in in-service trainings in addition to the necessary measures to improve the level of entrepreneurial attitude and skills-based training gaps.

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