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# Investigating the effect of vocational education and training on rural women's empowerment

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This research is an attempt to identify the most important dimensions of vocational education and training (VET) on empowering rural women, a topic that has received less attention. The present study is a quantitative, non-experimental, applied, survey research, whose statistical population includes rural women and girls who participated in VET classes. The research tool was a researcher-designed questionnaire. The reliability and validity of the research tool using a pilot test and calculating Cronbach's alpha, AVE, and CR coefficients were shown to indicate the high capability of the research tool to collect data. The results showed that among the four dimensions of VET, the role of content and educator was more than other dimensions and these dimensions of training had improved the economic empowerment of rural women, which was often at the lowest level. The conceptual framework presented can be used as a guide to achieving sustainable development goals of the millennium; and should be considered at the national and international levels. The paper makes an impact on the growing body of knowledge by emphasizing on more important dimensions of education; which can be effective for the empowerment of women, especially in the economic dimension. In the existing studies on empowering rural women, none of them examined the effect of all different components of education on women's overall empowerment, which are among the innovations of the present study and should be considered in future planning.

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## Introduction

Today, many theorists and social scientists believe that it is not possible to achieve sustainable development without the active participation of women in the political, social, and economic fields (Bayeh, 2016; Khurshid, 2016). Based on the report of FAO (2019), more than 80% of the world's poor live in rural areas and 70% of the world's poor are women. One of the fields in which rural women can use their intellectual capacities and potential abilities and benefit the rural community is entrepreneurship (Bishop, 2019). One of the most important issues that entrepreneur women need to succeed in doing self-employment activities is to create empowerment in themselves (Bayeh, 2016; Jung Choi et al., 2018). Women's empowerment is one of the most important indicators of social change (Kabeer, 2005) and a priority for achieving sustainable development goals (UNDP, 2015). Women's empowerment is a goal through which individuals will be able to make choices in situations that have already been rejected by society. (Kabeer, 2005; Mallhotra and Schuler, 2005; Miedema et al., 2018). In addition, empowering women increases them to achieve productive outcomes such as improving the health and nutrition of themselves and their children. Therefore, measuring women's empowerment is a key issue in achieving sustainable development (McGrath, 2012; McGrath and Lesley Powell, 2016). In fact, the 2030 agenda is based on prioritizing women's empowerment for sustainable development (Miedema et al., 2018; UN, 2015).

Empowering women means gaining the power to think and act freely, developing a sense of self-worth, believing in the ability to make the desired changes in oneself, the right to control one's life, the right to choose, the actualization of all women's potential and equality in society (Phala and Mukonza, 2021). In general, empowering women is the control of their life in every process and activity. In other words, empowerment is the process by which individuals progress to overcome obstacles and engage in activities that enable them to determine their own destiny (Hanaysha and Tahir, 2016). Various definitions have been proposed by researchers for the concept of empowerment in development literature. Today, empowerment has become one of the main concepts of sustainable development. The relationship between empowerment and sustainable development can be examined through three ways including: Empowerment is a component of sustainable development; empowerment is considered a factor in sustainable development; and empowerment is the result of sustainable development (Ataei et al., 2019; Mirzaei et al., 2011). In fact, the core values of sustainable development should be in improving the quality of life (empowering men and women to meet basic needs), trying to resolve class differences in societies, increasing public awareness and confidence, people's belief in the goals of development and maintaining security and freedom (Mirzaei et al., 2011). Today, new rural development theories cite rural entrepreneurship as a good way to empower and enable rural areas to change the current lifestyle, reduce urban and rural gaps, and create economic, social, environmental, and institutional equality (Yaghoobi farani and Movahedi, 2015).

One of the primary and vital components in any educational system is the empowerment of learners during the training process (Chell, 2013). Based on the latest statistics from the World Entrepreneurship Observatory on the state of women entrepreneurship in South and East Asia, the Caribbean and Latin America have more gender equality than other regions. In contrast, the Europe and North America region has many economies with a lack of gender equality. In some countries, women make up less than half of the working population (for example, Slovenia, Greece, Sweden, Turkey, and Iran) (Bosma and Kelley, 2019).

In Iran, the employment situation of women is not the same as in developing countries. Women have always had fewer job

opportunities and often work in the informal sector with low wages. According to the statistics of 2016, the economic participation rate in the population aged 10 and over in the whole country was 40.4%, which this index is calculated as 15.9% among women (Yoosefi Lebni et al., 2020). The highest activity of women in the service sector is 52.5, 24.1% in the industrial sector and 23.4% in the agricultural sector. At the same time, the role of rural women in Iran in determining agricultural development is crucial (Mivehchi, 2019). According to the 2016 census, the share of women's employment was 12.5 percent, of which 38.8 percent were rural women. Therefore, it is necessary to improve the employment and empowerment status of rural women by implementing entrepreneurship and empowerment programs in rural areas.

At present, Markazi province, with an area of 29,128 square kilometers, accounts for 1.79 percent of the total area of the country. This province is located almost in the center of Iran and is limited to Tehran, Alborz and Qazvin provinces from the north, to Lorestan and Isfahan provinces from the south, to Qom province from the east and to Hamadan province from the west. According to the national divisions in 2016, Markazi province has 12 cities and according to the 2016 census, the province's population was 142,9475 people. According to the statistics, 35.6% of the population aged 10 and over in the province in 2016 were economically active and the rest were inactive. This figure is 39.4% for the whole country, which is much lower in the province. Meanwhile, 90.3% of the economically active population are men and 9.7% are women. In 2016, the number of economically active people in the country has changed by +3.2% compared to the previous year. The percentage of change in the population of economically active men and women during this period was +4.6 and -8.5%, respectively (Statistics Center of Iran, 2018). Meanwhile, the number of employees in the province in 2016 has increased by 3.8% compared to the previous year. The percentage change for male and female employees was +4.7 and -4.2, respectively.

According to the population census of 2016, the population of Markazi province was 1430 thousand people, of which 1100 thousand people live in urban areas and 330 thousand people live in rural areas. In addition, in 2011, out of 1413 thousand people in the province, 1045 thousand people lived in urban areas and 368 thousand people lived in rural areas. The growth rate of the province's population from 2011 to 2016 was +0.22%, and this figure was 1.03% in urban areas and -2.23% in rural areas, which indicates a significant decrease in the rural population of the province. The province ranks 19th in terms of population compared to other provinces in Iran and accounts for 1.8% of the country's population. The rate of urbanization and ruralization in this province is 77.0% and 23.0%, respectively. The family size in this province is 1.8.

Adequate and continuous attention to rural women and their participation has a significant impact on economic prosperity at the family, local, regional and national levels (Naseri et al., 2020). In this regard, and in accordance with the goals and missions of the Ministry of Agriculture Jihad in the field of rural and nomadic women's education, the National Plan for vocational education and training has been implemented in order to empower rural women in Markazi Province. Vocational education described as occupational and technical training and educations. The National Plan for Vocational education and training has been implemented on a pilot test in the villages of Markazi Province since 2012. It is worth mentioning that the executives of this project are governments and non-governmental organizations. Vocational education and training conducted by Markazi Jihad Agricultural Organization to empower rural women include: vegetable and safflower cultivation, cultivation

of medicinal plants, saffron cultivation, processing and reduction of agricultural waste, flower arrangement, honey bee farming, sheep breeding, processing industries (livestock, horticulture, agriculture) and selection of facilitators.

Numerous studies have been conducted on the role of education in empowering and employing individuals. Of course, the role of vocational education and training on empowering rural women, which this research seeks to answer; less attention has been paid.

Women make up half of the world's population. They do two-thirds of the world's work and own only one-tenth of the world's income and one-hundredth of the world's assets (Heywood, 2014). Empowering women is not only for the benefit of women but also for the whole family. Women do not save for themselves with the income they earn, but spend it, while men bring home only 50 to 68% of their income (Chant, 2006). Women's empowerment is a process in which women are empowered to organize themselves, promote self-confidence, and exercise their rights to free choice and control over resources (Niknami et al., 2012). Therefore, empowering rural women as half of the rural population and the main influencers on the culture of society is an inevitable necessity. As it increases the quality of life, increases income, increases self-esteem, increases social mobility and achieves the development process (Susanti and Mas'udah, 2017).

Today, new theories of rural development from rural entrepreneurship as a suitable solution for empowerment and capacity building in rural areas to change the current pattern of life, reduce the gap between urban and rural, create economic, social, environmental and institutional equality. The most important step in empowerment is getting started. This point is within individuals (Sharaunga et al., 2016). To move within the framework of development, especially in the case of capable human resources, one must first begin with the individual's intellectual and attitudinal changes. Empowerment also begins where the most powerless people (poor and marginalized people like women) have a place and bring people into it from outside the development process (Kabeer, 2005). According to research in development literature, women play a key role in rural settlements. Although they are responsible for a variety of agricultural and non-agricultural activities. However, they have low incomes and are employed in low-wage jobs (Faxon, 2020). The fact is that the potentials and abilities of rural women are much less valued, and these abilities are not properly used to improve their lives and those of their families and communities (Abrar ul Haq et al., 2019). Based on the existence of such a problem, researchers and theorists of various sciences have conducted extensive research to gain a deeper understanding of the empowerment mechanisms of rural women to identify this capability in different regions of the country (Faxon, 2020). Based on their findings, in reviewing the development planning approaches, it is necessary to pay special attention to women in the development process. On this basis, in developmental perspectives, empowerment approach and rural women's participation have received special attention (Brixiova et al., 2015). Capacity building and empowerment of rural women as one of the most important components of sustainable rural development. The need to empower low-income and poor people to achieve their rights through access to and control over the natural resources of existing organizations has changed. Empowerment is also the process by which individuals, groups, and organizations take control of the issues and problems they face. Therefore, the goal of empowerment is to help weak people try to increase their skills and abilities to control their lives wisely and overcome their weaknesses and improve the positive aspects of their lives (Mackie, 2010).

Empowerment is a fundamental human right and a main principle of development. Empowerment is a management

strategy to facilitate decision-making power. Kabeer (2005) considers empowerment to mean that women have more access to resources and control over their lives, which gives them a greater sense of independence and confidence. This process increases women's self-esteem in the sense that it improves the image that women have of themselves. Malehatra defines women's empowerment as a process by which women become empowered to organize themselves and increase their self-confidence, and they are defending from their rights to independent choice and control over resources, leading to the demise of their inferiority status. Although there is no consensus on the definition of empowerment among researchers who have entered the field, in general, keywords such as: the right to choose, the possibility of choice, control and power, and other concepts close to the case. These are alternately referred to in existing definitions of empowerment. In most cases, such words refer to women's enjoyment of the ability to make effective and important decisions for themselves and their families (Cornwall, 2016). In summary, the empowerment steps can be defined as follows. Empowerment is the ability of people to lead and control their lives. If the above statement is true, the following statements are also true, empowered people can change their lives and need to organize themselves for this change. Self-organization is an indicator of empowerment. People realize their problems; they set goals for themselves; to do this, they specify a strategy; they mobilize resources; they start acting; which these actions are reflected in the results. The Table 1 shows a related studies in this regard.

By reviewing women's empowerment resources and models, in this study, women's empowerment was evaluated in four dimensions: economic, social, individual, and psychological dimensions (Choobchian, 2021; Sell and Minot, 2018; Miedema et al., 2018; Groot et al., 2017; Huis et al., 2017; Sayydeh et al., 2017; Akbarpour, 2016).

In the meantime, the effect of several factors on the empowerment of rural women has been studied, but less research has examined the role of different dimensions of vocational education and training on women's empowerment, which this research seeks to find this relationship. Vocational education and training have several dimensions, which include Content—Environment—learner—Teacher (Khoshnoodi Far et al., 2019; Yaghoobi Farni and Movahedi, 2015; Manuel et al., 2017; Fadel and Groff, 2019).

Therefore, according to the various models mentioned in the field of empowerment of rural women and vocational training, the conceptual model of research has been presented in the form of Fig. 1. The main purpose of the proposed model is to investigate the impact of the dimensions of vocational training on the empowerment of rural women. Using the findings of field research and statistical methods, the extent of this effect will be measurable.

## Research methods

In this section, women's empowerment was evaluated in four dimensions including economic, social, individual and psychological by participating in VET classes. VET conducted by Markazi Jihad Agricultural Organization to empower rural women includes vegetable and safflower cultivation, cultivation of medicinal plants, saffron cultivation, processing and reduction of agricultural waste, flower arrangement, honey bee farming, sheep breeding, processing industries (livestock, horticulture, agriculture) and selection of facilitators. The present study is a quantitative in terms of its nature, in terms of the amount of control on variables is a non-experimental, in terms of the purpose of the research is an applied ones, and in terms of data collection is a survey research. The study's statistical population

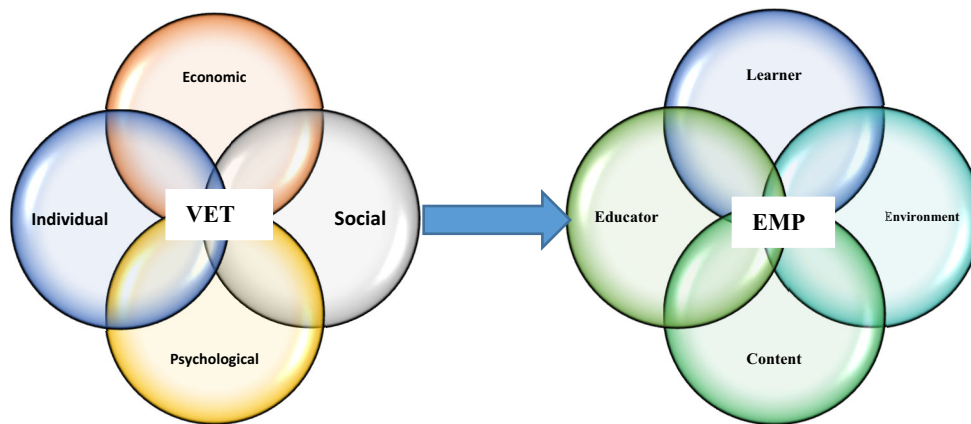
**Table 1 Related studies.**

Title	Researchers	Variables
"Reforming the gender-related development index and the gender empowerment measure: Implementing some specific proposals"	Klasen and Schüler, 2011	Political representation, representation in senior positions in the economy, and power over economic resources (proxied by earned incomes).
"Empowering Female-Headed Households Case: Women Working in Kosar Centers"	Kermani et al., 2013	Control over economic resources, decision-making power in the family, mobility and dynamism, as well as freedom from family domination were considered as factors that seem to be effective in distinguishing rural women in terms of empowerment levels.
"Vocational training for Liushou women in rural China: development by design"	Hongxia et al., 2015	Social and cultural aspects, Economic outcomes, Gender differences
"The Role and Function of Entrepreneurship Empowerment of Villagers in Rural Areas (Case Study: Central Part of Hashtroud)"	Akbarpour, 2016	Individual factors (perseverance, skill, independence, experience, creativity, success, control) as well as environmental factors (organizational, financial and educational) were seen to affect the empowerment of villagers. The empowerment model of the above rural women shows empowerment only in the individual and environmental dimension, while it does not show other dimensions of empowerment such as social, cultural, and psychological.
"Evaluating a vocational training program for women refugees at the Zaatari camp in Jordan: women empowerment: a journey and not an output"	Jabbar and Zaza, 2016	solicits demographic information, socio-economic status, marital status, education, vocation, skills; woman's attitudes towards the vocational program, women's confidence and self-esteem, improved their occupational business, and entrepreneurship skills, helped them generate income to build a better life for their shattered families; and gave them hope and opportunities.
"The Role of Occupational Capability in the Self-reliance of Rural Women in Ilam County"	Sayydeh, et al., 2017	Spricial and mental empowerment, Cultural and social empowerment, Economic empowerment
A Three-Dimensional Model of Women's Empowerment: Implications in the Field of Microfinance and Future Directions	Huis et al., 2017	Personal Empowerment, Relational Empowerment, Societal Empowerment
"Fueling women's empowerment? An exploration of the linkages between gender, entrepreneurship and access to energy in the informal food sector"	Groot et al., 2017	Empowerment means 'that people—both women and men—can take control over their lives: set their own agendas, gain skills (or have their own skills and knowledge recognized), increase self-confidence, solve problems, and develop self-reliance. Women's empowerment spans several dimensions, including the economic, socio-cultural, familial/interpersonal, legal, political, and psychological
Educators in non-formal vocational education and training in Mozambique: a plea for recognition and professionalization,	Manuel et al., 2017	Socio-economic developments, perceptions, experiences, educational conditions, Educators' role. Educators' competence.
Gendered distribution of 'knowledge required for empowerment' in Swedish vocational education curricula?	Ledman et al., 2018	individual enhancement; Social inclusion; Political participation; boy-dominated programs, girl-dominated programs
Women's empowerment in East Africa: Development of a cross-country comparable measure	Miedema et al., 2018	human and social assets, gender inequitable attitude, health decision-making
What are the factors influencing women's empowerment? Decision-making among small farmers in Uganda	Sell and Minot, 2018	Women empowerment factors were defined as individual characteristics, family characteristics, and societal characteristics.
"In Their Own Words: Elements of Youth; Empowerment in Spain"	Pineda-Herrero et al., 2018	Perception of young people's current level of empowerment; professional training; work experience
"Socio-Economic Factors and Women's Empowerment: Evidence from Punjab, Pakistan"	Khalid et al., 2020	Women's empowerment was defined as: mobility, decision-making, resource control and self-confidence, exposure to the media, social status, economic status and social status.

Research findings.

includes rural women and girls of Markazi province who participate in vocational education and training and classes, which consist of 3280 people. According to Morgan's table, the sample size was determined 344. In addition, a simple random sampling method was used in this study. All respondents were volunteers and were asked to receive a paper or digital questionnaire of their choice. Structured questionnaire was used as a research tool. The validity and reliability of the questionnaire were assessed by a pre-test and calculating Cronbach's alpha coefficient, which indicates

the high capability of the research tool to collect data. In this study, the empowerment of rural women was evaluated with 4 components of economic in 11 items (Niknami et al., 2012; Alkire et al., 2012; Alkire et al., 2013; Khalid et al., 2020), social in 15 items (Niknami et al., 2012; Kaldi and Salahshouri, 2012; Hongxia et al., 2015; Sell and Minot, 2018), psychological in 33 items (Menon, 1999; Spreitzer, 1995; Gong et al., 2020; Ariadna et al., 2021) and personal in 20 items (Soares et al., 2015; Akbarpour, 2016; Kafaei-Atrian et al., 2022). So that women and girls



**Fig. 1 Dimensions of VET and EMP.** Impact of the dimensions of vocational training on the rural women empowerment.

**Table 2 Cronbach's alpha values of the research variables.**

Variables	Dimensions	N	Cronbach's Alpha	Interpretation
Empowerment	Economic	11	0.79	Acceptable
	Social	15	0.70	Acceptable
	Individual	33	0.82	Good
	Psychological	20	0.84	Good
VET	Learner	8	0.76	Acceptable
	Environment	6	0.72	Acceptable
	Educator	15	0.84	Good
	Content	12	0.86	Good

Research findings.

participating in vocational training classes were asked to determine the impact of these classes on each of the empowerment items. The measurement scale of each item was the Likert range (1 = very low, 2 = low, 3 = medium, 4 = high, 5 = very high). In addition, for evaluating different dimensions of vocational education and training 4 dimensions of learner—Environment—Educator—Content, each with 8; 6; 15 and 12 items of 5 Likert scale were evaluated and measured, respectively (Table 2).

**Results**

The results showed that the age group of the rural women was between 20–50 years, the oldest of which is 50 years old and the youngest is 20 years old. Also, most of the subjects with a frequency of 162 people (47%) are in the age group of 33 to 45 years old. According to the research findings, 134 (38.95%) of the studied people are under diploma and 130 (37.83%) have primary education and a small number of people are in higher education (Table 3).

**Ranking of the components of empowerment.** Based on the findings shown in Table 4, participants' economic empowerment ranked highest after the vocational training courses and "having savings (3.28)", "self-reliance in production (3.21)" and "controlling the use of income (3.20)" had the highest ranks and "Independence in spending (2.83)" and "loan repayment power (2.80)" were at the bottom of the list. In terms of social empowerment; the items "creating a positive attitude towards rural women (3.74)", "a sense of trust between villagers (3.38)" and "intellectual assistance in planning (3.38)" were at the top and the "trust in experts (2.96)" and "participation without pay (2.84)" items were at the bottom. In order to assess individual ability after the training course, the items "using the opinions of

**Table 3 The frequency distribution of rural women in terms of age.**

Variables	Levels	Frequency	Percent	Cumulative Percent
Age	$X \leq 33$	108	31.39	31.39
	$33 < x \leq 45$	162	47.00	78.39
	$x > 45$	58	16.80	95.19
	Missing	16	4.6	100
	Total	344	100	
Level of education	Under diploma	134	38.95	-
	Diploma	130	37.83	-
	BA	54	15.68	-
	MA	13	3.77	-
	Ph.D	13	3.77	-
	Total	344	100	-

Research findings.

others (3.26%)", "Ability to use the guidance of others (3.20)" and "Helping others (3.19)" were ranked at the top, and the items "Paying attention to all solutions (2.67)" and "drawing bright Future (2.66)" are at the lowest position of the list. From the psychological empowerment perspective, "Self-esteem (3.34)", "confidence in planning (3.339)" and "trying to solve problems (3.338)" were at the top, and "Behavior as desired (2.970)" and "ability to express opinions (2.936)" were ranked lowest (Table 4).

Since the variables of this study have not a normal distribution, so to test the relationship among the research variables, the Friedman test was used, the result of which is presented in Table 5. According to the findings, participation in these classes has improved social, psychological and economic capabilities, respectively. The results of Friedman test shows there is a significant difference between different components of improved empowerment.

**Ranking of the components of the vocational education and training.** In the present study, 15 items were used to evaluate the educator component. The results indicate that "the participation of learners (3.160)", "proficiency (3.046)" and "Appropriateness of educators (3.023)" had the highest rank and "ability and skill (2.831)", "appropriateness of expertize (2.825)" and "provision of regular content (2.587)" had the minimum rank.

In terms of environment, "Appropriate tools (2.988)" and "The right timing (2.924)" are at the top and "Suitable equipment

**Table 4 The ranking of the components of empowerment.**

Components	Items	Mean	SD	Rank	
Economic	Having savings	3.28	1.02	1	
	Self-reliance in production	3.21	1.07	2	
	Money use control	3.20	1.01	3	
	The ability to earn money	3.19	1.01	4	
	Property ownership	3.06	1.06	5	
	Access to credit	3.03	1.02	6	
	Increasing income	3.00	1.07	7	
	Entering to productive decisions	2.97	1.03	8	
	Financial independence	2.91	1.27	9	
	Independence in spending	2.83	1.18	10	
	Loan repayment power	2.80	1.26	11	
Social	Total	3.04	-	-	
	Creating a positive attitude towards rural women	3.74	0.94	1	
	A sense of trust between the villagers	3.381	0.98	2	
	Intellectual assistance in planning	3.380	1.01	3	
	Participate in decision-making	3.35	1.02	4	
	Loyalty to the values	3.28	0.99	5	
	Participate in religious ceremonies	3.20	0.98	6	
	Positive attitude towards life	3.186	0.86	7	
	Belief in doing things	3.183	0.91	8	
	Participation in environmental protection	3.17	0.98	9	
	Participate in dispute resolution	3.16	1.05	10	
	The rate of change in common values	3.06	1.01	11	
	The level of communication with the council	3.02	1.07	12	
	Participate in the formation of a charity	3.00	1.01	13	
	Trust the experts	2.96	1.03	14	
	Participation without pay	2.84	1.28	15	
	Total	3.19	-	-	
	Individual	Use the opinions of others	3.26	1.19	1
		Ability to guide others	3.20	1.25	2
		Helping others	3.19	1.09	3
		Troubleshooting and problem solving	3.18	1.25	4
		Having a specific plan	3.136	1.43	5
		Ability to work	3.133	1.23	6
Knowing the importance of each work		3.12	1.06	7	
Participate in decision-making		3.11	1.12	8	
Having a specific plan		3.10	1.77	9	
Rapid acceptance of new methods		3.04	1.40	10	
Being autonomous		3.034	1.36	11	
Ability to use new methods		3.032	1.38	12	
Being self-initiated		3.023	1.043	13	
Lifelong learning		3.014	1.53	14	
Comment on decision-making		3.011	1.18	15	
Being a guide		2.99	1.37	16	
Seriousness in work		2.98	1.38	17	
Being initiative		2.976	1.39	18	
Social acceptance		2.970	1.30	19	
Free time		2.96	1.38	20	
Workload		2.95	1.39	21	
Do group work		2.93	1.01	22	
Ability to build life		2.92	1.04	23	
Voluntarily doing things	2.90	0.95	24		
Self-reliance	2.88	1.06	25		
Responsibility	2.86	1.28	26		
Find a solution	2.84	0.87	27		

**Table 4 (continued)**

Components	Items	Mean	SD	Rank
Psychological	Being skilled	2.81	1.26	28
	Internal motivation	2.803	1.14	29
	Having the right idea	2.802	1.22	30
	Riskability	2.68	1.17	31
	Pay attention to all solutions	2.67	1.17	32
	Draw a bright future	2.66	1.02	33
	Total	2.97	-	-
	Respect yourself/ self-esteem	3.340	1.34	1
	Ensure that your plans are met	3.339	1.076	2
	Trying to solve the problem	3.338	1.083	3
	Individual efforts are effective in improving life	3.197	1.44	4
	I don't think I failed	3.191	1.24	5
	Having things to be proud of	3.183	1.23	6
	Feeling able to work	3.182	1.20	7
	Do things well	3.15	1.25	8
	Having a sense of human worth	3.145	1.30	9
	Satisfied with your work	3.144	1.27	10
	Be self-reliant in solving problems	3.078	1.32	11
	Ability to change life situation	3.069	1.35	12
	People use my opinions	3.066	1.28	13
	Decision-making in marriage and children's education	3.04	1.33	14
	The decision maker in the way she and her children interact	3.02	1.34	15
	Ability to persevere and manage	3.017	1.39	16
	Positive attitude towards yourself	3.00	1.36	17
	Having some good features	2.976	1.35	18
	Behavior as desired/ sexual and reproductive decision-making	2.970	1.40	19
	Ability to express opinions	2.936	1.43	20
	Total	3.11	-	-

Research findings.

**Table 5 Improvement in the empowerment components.**

Components	Mean	Mean Rank	Rank	Sig
Social	3.19	3.24	1	0.000
Psychological	3.11	2.69	2	
Economical	3.04	2.34	3	
Individual	2.97	1.73	4	
Total	12.30	-	-	

Research findings.

(2.793)” and “Proper classroom layout (2.773)” are at the bottom. 12 items were used to evaluate the content component, based on the results “content efficiency (3.488)” and “curriculum variety (3.395)” had the highest rank and “presentation of new concepts (2.860)” and “applicability (2.613)” had the lowest rank. In addition, eight items were used to evaluate the learner component, between them “interest in learning (3)” and “positive attitude towards learning (2.959)” had the highest rank and “activities and performance of learners (2.683)” had the lowest rank (Table 6).

The Table 7 shows the status of the vocational education and training components. The content has the first place, followed by the educator; environment and learners are next in line. The result of Friedman test showed there is a significant different

**Table 6 Ranking of the components of the vocational education and training.**

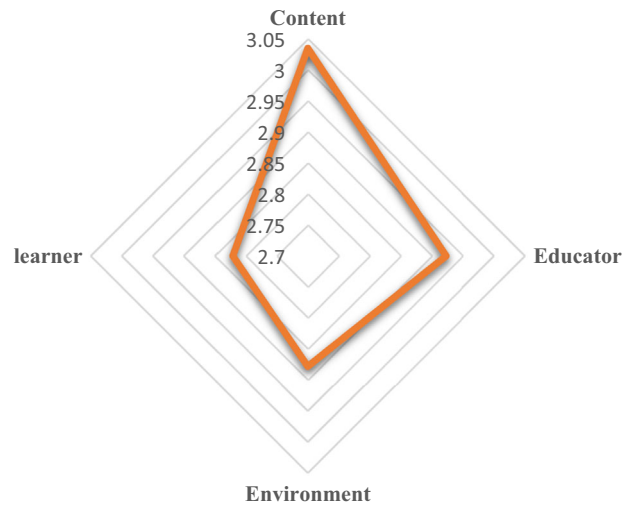
Components	Items	Mean	SD	Rank
Educator	Involve learners	3.160	1.333	1
	Proficiency	3.046	1.356	2
	Appropriateness of educators	3.023	1.384	3
	Use different methods	2.997	1.272	4
	Commitment and responsibility	2.970	0.931	5
	Ability to establish order	2.965	1.476	6
	Being familiar with the Psychology	2.939	1.388	7
	Provide a spiritual atmosphere	2.938	1.024	8
	Beauty status	2.933	1.406	9
	Pay attention to learners' participation	2.930	1.369	10
	Allocate total class time	2.880	1.268	11
	Sympathy	2.834	1.359	12
	Ability and skill	2.831	1.142	13
	Appropriateness of expertise	2.825	1.333	14
	Provision of regular content	2.587	1.356	15
Total	2.923	-	-	
Environment	Appropriate tools	2.988	1.35	1
	The right timing	2.924	1.27	2
	Physical conditions	2.909	1.25	3
	Enough educational space	2.883	1.29	4
	Suitable equipment	2.793	1.32	5
	Proper classroom layout	2.773	1.26	6
	Total	2.878	-	-
Content	Content efficiency	3.488	1.34	1
	Variety of curricula	3.395	1.34	2
	High content volume	3.392	1.25	3
	Attractive	3.000	1.11	4
	Fits the needs	2.988	0.95	5
	Proportional to scientific ability	2.988	1.41	6
	Fit with interests	2.965	1.27	7
	Fit with creativity	2.944	1.26	8
	Influence on skill creation	2.921	1.23	9
	Up-to-date information	2.877	1.01	10
	New concepts	2.860	1.37	11
	Applicability	2.613	1.16	12
	Total	3.035	-	-
Learner	Interest in learning	3.000	1.36	1
	Positive attitude towards learning	2.959	1.33	2
	Peace of mind	2.947	1.36	3
	Feeling the need for learning	2.816	1.05	4
	A generational gap between learners	2.752	1.44	5
	Cultural diversity of learners	2.712	1.28	6
	Knowledge of courses	2.700	1.19	7
	Learners' activities and performance	2.683	1.12	8
	Total	2.821	-	-

Research findings.

**Table 7 The status of the vocational education and training components.**

Components	Mean	Mean Rank	Rank	Sig
Content	3.035	3.42	1	0.000
Educator	2.923	2.63	2	
Environment	2.878	2.18	3	
learner	2.821	1.77	4	
Total	11.68	-	-	

Research findings.



**Fig. 2 Radar diagram.** The radar diagram of the vocational education and training components.

**Table 8 The correlation between research variables and the empowerment.**

Independent variables	Pearson correlation coefficient	Sig
Content	0.891**	0.00
Educator	0.721**	0.00
Environment	0.875**	0.00
learner	0.721**	0.00
Vocational education and training	0.897**	0.00

Significance level: \*\*Significance at the level of one percent. Research findings.

between different components of vocational education and training at 1% level.

As can be seen in the following radar diagram (Fig. 2), the content component has a better situation among different components of vocational education and training.

**Correlations test results.** In order to test the relationship between the research variables, the Pearson correlation coefficient was applied, the result of which is indicated in Table 8. The results of the correlation coefficient between content, educator, environment, learner and vocational education and training showed that there is a significant relationship between these variables at the level of one percent error with 99 percent confidence. Therefore, there is a considerable relationship between independent variables and empowerment.

**Predicting the total empowerment regression line in terms of training components.** Multiple stepwise regression methods have been used to determine the strongest variables to predict total empowerment. The results in Table 9 show that the content and educator components predict about 87% of the variation in overall empowerment.

According to the results of Table 10, it is clear that in the second step, the content components and the educator had the greatest power in predicting the total empowerment variable. According to the results of the significance level column, because the significance level for these two components has been reduced

**Table 9 Summary of multiple regression test model for predicting empowerment.**

Model	R	R <sup>2</sup>	R <sup>2</sup> Adj	SE
1	0.891	0.798	0.792	0.422
2	0.933	0.871	0.870	0.400

Research findings.

**Table 10 State of the coefficients of the variables in the multiple regression test.**

Model		Unstandardized		Standardized		
		B	SE	$\beta$	t	Sig
1	Constant	0.893	0.334	-	2.676	0.000
	Content	3.671	0.101	0.891	36.204	0.000
2	Constant	0.867	0.264	-	3.228	0.000
	Content	2.148	0.133	0.521	16.161	0.000
	Educator	1.754	0.122	0.463	14.370	0.000

Dependent variable: empowerment.

to zero, it can be concluded that these two components have a significant effect on the overall empowerment prediction. Given the standard coefficients (Beta) column in the Table 10, it can be concluded that for increasing a standard deviation in the content variable, the total empowerment will increase by 0.521 and for increasing a standard deviation in the educator variable, total empowerment will increase by 0.463.

The equation for regression of total empowerment in terms of vocational education & training components will be as follows:

Total empowerment: Y; Content:  $x_1$ ; Educator:  $x_2$

$$Y : 0.867 + 2.148x_1 + 1.754x_2$$

## Discussion

The concept of empowerment has become an important aspect of NGOs' and development organizations' programs to assist rural and agricultural development, as well as women, in recent years. Rural women's empowerment is also one of the most important rural development initiatives in the recent era. Empowerment assists women in gaining a sense of self-worth and overcoming their limitations. In this study, affecting of vocational training and education on rural women's empowerment in Markazi province were investigated. The results showed that considering the status of the components of vocational education and training, considering that most of them are evaluated as average, the content of the courses taught has been very effective in empowering women. The results of the correlation analysis showed that there is a significant relationship between the VET and empowerment. In other words, among four dimensions of VET, the role of content and educator was more than other dimensions and these dimensions of training had improved the economic empowerment of rural women, which was often at the lowest level.

Previous literature addressed the effective role of educators in improving the ability of women participating in specialized training and entrepreneurship courses. For instance, Manuel et al. (2017) investigated the role and teachers competencies in improving women's empowerment, but in that research the role of educators was dealt with and other dimensions was ignored.

In current research, learners were asked to express the impact of vocational education and training on their empowerment. The results indicated that the components of social, psychological and economic empowerment had better situation, and the situation of individual empowerment was below average. These results are in line with the studies of Kalantari et al. (2010) and Ghanbari and Ansari (2014). According to their research, individual, psychological, economic involvement, infrastructural, and social-institutional factors all have a role in women's empowerment. In general, they showed that in addition to technical and psychological factors, social and cultural factors also have a significant effect on women's empowerment. Kermani et al. (2013) found that economic factors have a significant impact on the empowerment of rural women. In their research, the correlation analysis showed that there is a significant relationship between the political and social dimensions of professional competencies and women's empowerment. In other words, the social and political dimensions of professional competencies have had a positive effect on empowerment. Wang and Wong (2011) believe that as women become more empowered, their productivity, political participation, and social role increase. This in itself requires raising the level of education and training of women, which is a prerequisite for positively oriented management about education. However, Chiang and Hsieh (2012) have also emphasized the effect of psychological empowerment on employment and have shown in their research that the laws and resources of women's access to socio-economic services are insufficient and make them vulnerable. Liu et al. (2017) in a study entitled "Female Heads of Household and Living Conditions in Latin America" concluded that the number of female heads of households is increasing worldwide and female-headed households are poorer than male-headed households, so policymakers need to provide equal opportunities for women. Findings from research in Iran and other parts of the world show that female heads of households face chronic and persistent pressures and negative social attitudes towards themselves and receive very little social support. Therefore, it is not surprising that they have a high rate of mental disorders. The high rate of psychological problems in them is due to economic and social conditions and is not related to their gender. Ghanbari and Ansari (2014) in a study entitled "Identification and explanation of social and economic factors affecting the empowerment of rural women" concluded that the most important factors affecting the empowerment of rural women, and their participation in economic activities, are individual and social factors. Also, the main obstacles to women's empowerment are factors such as lack of job opportunities, low level of education, family decisions, and lack of legal protections and communication networks.

Some previous research has examined the abilities of individuals and women (Klasen and Schüller, 2011; Hongxia et al., 2015; Huis et al., 2017; Groot et al., 2017; Miedema et al., 2018; Sell and Minot, 2018). Some focused on the role of vocational training in empowerment (Jabbar and Zaza, 2016; Ledman et al., 2018; Pineda-Herrero et al., 2018). Some focused only on specific aspects of education, such as the impact of educator's proficiency on empowerment. However, none of them examined the effect of all different components of education on women's overall empowerment, which are among the innovations of the present study and should be considered in future planning.

## Conclusion

The scope of empowerment is such that all members of society, from the lowest level of development to the highest level of self-knowledge, are exposed. Rural women, as an effective factor in various agricultural activities, have a significant share in the



participation of the required manpower in the rural community, so that without their participation, it is impossible to achieve rural development. Rural organizations, as supportive and motivating factors, can also play an important role in empowering women, so that with the solutions and credits that these organizations provides, can take steps to build trust. Empowerment is a developmental issue, since women who are empowered will be able to act in broader aspects and play a more active role in all aspects to change in different ways, we must empower each idea to make a reasonable change to increase welfare for rural women. Empowering women needs to provide social contexts before the individual ones. In societies where men and women have the same opportunities for growth and development, it is possible to achieve the desired level of empowerment. Studies have shown that education plays an important role in empowerment; a review of the level of education of studied rural women showed that the implementation of educational and cultural programs to empower the women's community is not out of reach. According to the results, the content and educator components had the greatest impact on overall woman's empowerment. Based on this, it is suggested to develop the content and topics of the training courses from expert aware and skilled professors. In addition, before compiling and designing the course; training needs assessment; to be done. In addition, due to the key role of educators, it is recommended that research be conducted on the qualifications required by the educators for vocational education and training, and assigning the educators according to those qualifications. This study makes it clear that vocational training and education can contribute to women's empowerment, and thus contributes to available literature on the topic. Although faced with a lot of challenges within the education system, VET has provided a way for women to empower them, benefits such as having savings, self-reliance in production, financial independence, a sense of trust between the villagers, intellectual assistance in planning, self-esteem and having a sense of human worth. By investigating the potential role of VET, various approached can be provided in which opportunities and freedom for rural women could be expanded, which is especially important for those come from poor family. Thus, VET can provide an opportunity for women to achieve their well-being.

Given that in terms of the individual empowerment that saw the least improvement; in this dimension, items such as drawing a bright future, paying attention to all solutions, taking risks and having the right idea had the lowest scores, which requires special attention. In this regard, classes and workshops to improve people's attitudes towards the future and their risk-taking can be very fruitful; since human attitude is more the cause of growth and prosperity than talent; the more positive and constructive it is, the more it will be loved and respected by those around it. Therefore, holding these workshops can be effective in improving the overall empowerment and promoting other dimensions of women's empowerment; positive people have broader relationships and can overcome all the elements of empowerment. It also seems necessary to set up skill training workshops and dialog techniques for rural women in order to empower them in social interactions and communication inside and outside the village. Providing quick-return projects in rural areas by managers and officials to apply the skills of trained rural women in various areas with an emphasis on indigenous knowledge will play an effective role in increasing the capabilities of these people. Also, it is suggested that appropriate strategies be identified to recognize income-generating and sustainable jobs and motivate economic activity in rural women in order to empower them, ultimately to encourage rural trained women in self-employment; policies should be adopted to oblige banks and financial institutions to allocate a percentage of their facilities to trained rural women to

start a business. Finally, it is suggested that the effect of different dimensions of vocational training on each dimension of individual, social, economic and psychological empowerment be examined and determine which component is more effective on which dimension of empowerment. Based on the findings of this study, it is suggested that to increase the socio-political participation and social health of female heads of households, government and supportive institutions should take the necessary measures to create a culture, change society's attitude towards the harm of these families, and eliminate their social isolation. In this regard, holding training classes to strengthen life skills, decision-making, problem solving and communication, social skills of female heads of households and increasing levels of political awareness by emphasizing their valuable role in the development and excellence of society can be effective.

### Data availability

Data is available on request.

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**Competing interests**

The authors declare no competing interests.

**Ethical approval**

The Tarbiat Modares University ethical committee approved the research. The authors confirm that all research was performed in accordance with relevant guidelines and regulations, including the Declaration of Helsinki.

**Informed consent**

Authors confirming that informed consent was obtained from all participants and/or their legal guardians.

**Additional information**

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