

Designing a Model Based on the Impact of Information Technology on the Empowerment Components for University Professors with Mediating Role of Social Resilience

Reza Rastegar Roshan¹, Morteza Tarkhan^{2*}, Mahmoud Ekrami³, Mohammad Reza Sarmadi⁴

1. PhD student, Planning for Distance Education, Payame Noor University, Tehran, Iran.
2. Associate Professor at Payame Noor University, Tehran, Iran.
3. Associate Professor at Payame Noor University, Tehran, Iran.
4. Associate Professor at Payame Noor University, Tehran, Iran

Article history:

Received date: 4 September 2017

Review date: 15 November 2017

Accepted date: 20 January 2018

Keywords:

information technology, empowerment components, professors, resilience, Payame Noor University, Mazandaran.

Abstract

Purpose: The purpose of this study was to investigate the design of a model based on the impact of information technology on the empowerment components of professors with mediating role of social resilience in the Payame Noor University of Mazandaran province. The research method was descriptive-correlational. **Methodology:** The statistical population of this research included all professors (scientific and invited) in Payame Noor University of Mazandaran (2539 people). In this study, 280 people were selected as the sample from three branches of Mazandaran Payame Noor University using randomized cluster method. Three standard questionnaires used as the measurement instruments in this research were Ghasemi's information technology questionnaire, Spritzer's empowerment questionnaire, and Connor and Davidson's resilience questionnaire. In the descriptive statistics part, plotting charts and calculating the statistical indices were used to describe the hypotheses. Structural equation modeling test was used to analyze the data. The data were analyzed using SPSS22 and Amos software. **Findings:** The findings of this research indicated that the design of the model based on information technology influences the empowerment components of professors with mediating role of social resilience in the Payame Noor University of Mazandaran province and all the paths of the effect of the exogenous variables on endogenous variables and endogenous variables on exogenous variables are significant at the level of $\alpha = 0.05$. Also, all direct and total effects of the endogenous and exogenous variables were significant ($p \leq 0.05$), and all indirect effects of the exogenous and endogenous variables on the endogenous variables were significant. In the final model of information technology and faculty empowerment variables, the highest path coefficient was for the path from information technology to faculty empowerment (0.72) and then from the components of faculty empowerment to resilience (0.71). **Conclusion:** Information technology and mediating empowerment components have a resilient effect on empowerment components and have shown their mediating role well.

Please cite this article as: Rastegar Roshan R, Tarkhan M, Ekrami M, Sarmadi M R. (2018). Designing a Model Based on the Impact of Information Technology on the Empowerment Components for University Professors with Mediating Role of Social Resilience. *Iranian journal of educational Sociology*. 1(9), 216-225.

* Corresponding Author e-mail: mttmaster20@yahoo.com

1. Introduction

Information technology plays a vital role in the survival of each organization, enables managers to control and coordinate complex structures by rapid process of information and promotes the coherence and feedback of the organizational performance more quickly. Due to the rapid change of human knowledge and information, everything is changing and evolving rapidly. Organizations interact with the environment as an open system. And for survival, they need to be responsive to the environmental changes. Since human resources are considered as the most important factor in the organizations, the equipment and the preparation of these resources are of particular importance in dealing with the changes, and all organizations with any mission should allocate the greatest amount of capital, time, and program to the cultivation of humans in different dimensions (Davenport, 2010).

One of the most valuable inputs of any organization is information. Information is considered as a kind of asset for the organization, and the most valuable information increases the confidence. And organization is not able to do anything without access to information. Empowering professors requires different tools such as authority meaning having the freedom of action for employees to achieve the goals of the organization, knowledge meaning having the appropriate tools and information for the proper decision-making about assignment of work or task that is important and results in the fundamental outcomes. At present, there are several problems regarding the level of familiarity with information technology, the manner and extent of using this technology, identifying the empowerment indicators and abilities of the professors, which is the main issue of this research (Denton & Kleiman, 2011).

Some of the problems which are common in the universities due to not properly using information technology and ultimately influence the effectiveness of the professors as a subset of employees are as follows: Professors have little skill and knowledge to use the day technologies. On the other hand, sometimes the specialists are not present in the educational environment for software training and only a few people have the necessary skills and knowledge. In addition, factors such as the limited attention of managers to basic software which causes major changes in organizations and little attention to the latest technologies of the day and its knowledge for fostering new ideas along with the independence and freedom of the professors can be added to these factors. Finally, the low willingness and power as well as the resistance of the professors to new technologies, the ability needed in the information processing network, the increase in employees' error in their duties, not too much skill and creativity for using the technology, lack of teamwork spirit, lack of the ability to make the right decision, the lack of abilities necessary for the professors' day knowledge and technology, low awareness of the potential sources of information technology are some of the major obstacles. Unfortunately, lack of awareness of this fact that the technology and its application in the organization lead to the effectiveness of the performance and optimal decision-making by the professors and lack of communication systems for the information exchange in line with the quality of professors' performance are the negative factors affecting this process. The term resilience can be defined as the ability to come out of difficult situation or to modify it. Indeed, resilience is the capacity of an individual to stay healthy and to withstand and endure in difficult and high-risk situations where he/she not only overcomes those difficult circumstances, but also gets stronger during and under them. So resilience means ability to succeed, live and grow in difficult situations (despite the risk factors). This process will not be created by itself unless the individual is in a difficult and unpleasant situation and make his/her maximum effort to discover and use the potential protective factors (personal and environmental) inside and outside of him/her in order to escape from it or be less vulnerable. The resilience is used for people who are at risk, but not suffering from disorders. Hence, it may be concluded that exposure to risk is necessary for vulnerability, but not sufficient. Resilience factors make it possible for person to use his/her existing capacities to succeed and grow in life under the difficult circumstances and despite of the risk factors and use this challenges and tests as an opportunity to empower himself/herself and become proud (Skandari, 2013, p. 25).

2. Literature Review

Resilience is considered a personality trait playing important role in all abilities. According to Luthar & Cicchetti (2000) and Masten (2001), resilience is one of these concepts and constructs studied and considered by positive psychology, and most research done on resilience are in the field of developmental psychology. Resilience is the ability of individuals to adapt effectively to the environment, despite being exposed to risk factors. Risk factors are those negative situations and conditions associated with negative outcomes and behavioral problems (Gomez and McLaren). Connor and Davidson (2003) define resilience as an individual's ability to establish psychological-biological equilibrium in hazardous conditions. They don't consider resilience only as sustainability under the threatening conditions, but define it as an individual's active participation in the environment. Professors who have a high degree of seriousness and conscience are curious, aspiring to progress, hard-working and diligent, and have the necessary knowledge of information technology in their curriculum activities, and use these challenges and tests as an opportunity for empowerment. Such features are well suited to the concept of personality trait of hardiness. It is particularly noteworthy that personality hardness has a positive relationship with information technology and empowerment. A person, who has a high commitment, believes in the importance and meaning of who he is and what he does, and on this basis he can find meaning in everything that he does and provoke his curiosity. Professors who have a high degree of commitment are immersed with interest in their teaching activities and consider this position as the best way to achieve their educational goals. Such an attitude makes it possible for professors to evaluate the curriculum as an important, valuable and interesting situation and allocate more time to it. Resilience, individual ability to establish a psychological, spiritual and biological balance under the risky conditions, is a kind of self-repair associated with positive emotional, sentimental and cognitive outcomes. Research has shown that resilient people do not have self-serving behaviors, are emotionally calm and able to cope with unpleasant and hard situations (Bahadori Khosroshahi & Hashemi Nosratabad, 2012, p. 12). At the end, the main research question is brought about: Does the design of a model based on the information technology affect the components of empowering professors with mediating role of resilience?

3. Methodology

The research method is descriptive-correlational. In the data analysis, structural equation modeling was used to test both the model and the research hypotheses. This method is a model for studying linear relationships between research variables and questionnaire items. In other words, structural equation modeling is a powerful statistical technique combining the measurement model and structural model with a simultaneous statistical test. The AMOS software was used in the study. In the AMOS, two models were measured. The first model was an external model equivalent to the measurement model. The second model was an internal model equivalent to the structural model in the literature of structural equations and the validity and reliability of the research tool has been tested in the external model and the research hypotheses in the internal model. In addition, factor analysis should ensure that whether the available data can be used for analysis or not? For this purpose, KMO index and Bartlett's test were used. Bartlett's test checks whether the correlation matrix is the unit matrix or not? If the matrix is equal to one, there is no significant relationship between the variables and the new factors cannot be identified based on the correlation of the variables. Bartlett's test is significant at the level of 0.01 in the matrix adequacy check. This means that the obtained matrix is sufficiently adequate and the research data are able to be factors. This allows us to continue the factor analysis. The statistical population of this study includes all professors (scientific and invited) in Payame Noor University of Mazandaran province (2539 people). In this research, 280 people were selected as the sample. Sampling method in this research was randomized cluster method, in which 400 professors

were randomly selected from three branches of Payame Noor University in Mazandaran province. 280 professors who responded to the questionnaire of this research correctly were selected as the random sample. Three standard questionnaires used as the measurement instruments in this research were Ghasemi's (2013) information technology questionnaire, Spreitzer's (1998) empowerment questionnaire, and Connor and Davidson's (2003) resilience questionnaire. For data analysis, descriptive statistics and inferential statistics were used as follows. In the descriptive part, the diagrams and tables, and statistical indices were used to describe the hypotheses. In the inferential part, the Kolmogorov-Smirnov test was used to study data normality and structural equation modeling to test the research hypotheses. The data were analyzed using the AMOS software.

4. Finding

Table 1. Cronbach's alpha coefficients for Ghasemi's (2013) Information Technology Scale

Reliability coefficient quoted by Ghasemi (2013)	Standard deviation	Mean	Reliability coefficient (α)	Subscale
0/79	9/895	55/10	0/883	Type of Use
0/76	6/990	35/90	0/812	Using educational software
0/69	4/109	14/72	0/811	The type and extent of using the Internet
0/76	4/456	10/55	0/859	The type and extent of using Internet services

Exploratory factor analysis: In order to know if the sample is appropriate for analysis, two basic indicators of the factor analysis were examined. To investigate the adequacy of sampling, KMO measure was used and Bartlett's test was used to examine the significance of the correlation matrix. Kaiser-Meyer-Olkin measure of sampling adequacy index was 0.722 and the significance of Bartlett's test of sphericity ($P \leq 0.001$, $df = 465$, $\chi^2 = 029.15$) showed that the correlation matrix and sample were suitable for this analysis. Also, in the anti-image matrix, diagonal values of correlation (KMO) were checked for each variable, which were not below 0.5. So there was no need to remove any item. In the reproduced correlation matrix, residual was also very small, indicating both the ability to become factor and factor analysis as a good solution. The principal component analysis was selected and extracted using Ablymyn method due to the correlation between the factors. The confirmatory analysis model was also used to confirm the structure of IT-scale factors. In this research, confirmatory factor analysis was performed using Lisrel 8/8 software on a five-factor model of information technology scale. The maximum probability method was used for model estimation and the following indices for model fit. The evaluation of the fit indices confirmed the five-factor model of IT scale. The results are represented in Table 2.

Table 2. Summary of goodness of fit indices for the IT scale

AAGFI	GFI	CFI	NNFI	NFI	RMR	RMSEA	p-value	df / χ^2	DF	χ^2
0/82	0/85	0/94	0/94	0/93	0/07	0/06	0/00	3/41	279	735/17

One of the most important fit statistics is the Chi-square statistic. This statistic measures the magnitude of the difference between observed and estimated matrices. To accept the model, Chi-square/degree of freedom must be less than 3 (Kline, 1998). This statistic is very sensitive to sample size, and in samples larger than 100 it is usually significant and therefore is not considered as a suitable index for model fit. As seen in the table, this value is greater than 3. The value of RMSEA index for models with very good fit is below 0.05, and values above 0.08 represent a reasonable error in the population. Since this value is 0.06 in the present study, it can be said that good fit has been observed. The CFI, NNFI, NFI indices have a range from 0 to 1. The closer they are to 1, the more favorable model fit will be. Here, all three indices are close to 1. The closer the GFI is to 1, the better and more fit the model is. The appropriate value for AGFI is similar to GFI index, which is between 0 and 1, a value closer to 1. In summary, according to the mentioned

indices, the factor analysis model of the information technology scale was confirmed. In order to measure the empowerment variable, five subscales including sense of meaningfulness in the job, sense of competence in the job, sense of having the right to choose, sense of being effective and sense of participation with others have been used. Spritzer (1998) has used exploratory and confirmatory factor analysis to validate these three subscales and the internal consistency method and Cronbach's alpha method to verify their reliability.

Table 3. Cronbach's alpha coefficients of empowerment subscales in this research and Pintrich's et al. (1993) research

Reliability coefficient quoted by Spritzer (1998)	Standard deviation	Mean	Reliability coefficient (α)	Empowerment
0/90	8/798	27/61	0/896	Sense of meaningfulness in the job
0/93	8/937	31/26	0/886	Sense of competence in the job
0/74	6/305	21/92	0/702	Sense of having the right to choose
0/62	7/810	24/06	0/861	Sense of being effective
0/65	7/903	22/09	0/731	Sense of participation with others

To assess the adequacy of sampling, KMO measure was used for each subscale and Bartlett's test was used to examine the significance of correlation matrix.

Table 4. KMO sampling adequacy index and Bartlett's test of sphericity for each subscale of empowering professors

P-value	Df	Bartlett's test of sphericity	Sampling adequacy index (KMO)	Subscale
		χ^2		
0/001	15	908/21	0/889	Sense of meaningfulness in the job
0/001	21	991/79	0/875	Sense of competence in the job
0/001	45	1021/24	0/861	Sense of having the right to choose
0/001	36	981/87	0/832	Sense of being effective
0/001	57	1056/27	0/876	Sense of participation with others

The evaluation of the indices in Table 4 shows that the correlation matrix and sample is appropriate for this analysis. For each of the three subscales, principal component analysis was used with the Varimax rotation method. Confirmatory factor analysis: Confirmatory factor analysis of five variables including sense of meaningfulness in the job, sense of competence in the job, sense of having the right to choose, sense of being effective and sense of participation with others was done similar to the stages of confirmatory factor analysis for the professors' empowerment scale. The values of fit indices in three subscales of assignment value, self-efficacy and goal-orientation are reported in Table 5.

Table 5. Summary of goodness of fit indices for the five subscales of sense of meaningfulness in the job, sense of competence in the job, sense of having the right to choose, sense of being effective and sense of participation with others

AAGFI	GFI	CFI	NNFI	NFI	RMR	RMSEA	p-value	df / χ^2	DF	χ^2
78/0	0/72	0/97	0/97	0/95	0/06	0/06	0/001	5/04	279	565/01

As shown in the table, the Chi-square/ degree of freedom statistic is greater than 3, but due to the sensitivity of this statistic to the sample size (<100), this is not an appropriate index for the model fit. The value of the RMSEA index for models with very good fit is below 0.05 and values above 0.08 represent a reasonable error in the population. Since this value is 0.06 in the present study, it can be said that rather good fit has been observed. The CFI, NNFI, NFI indices have a range from 0 to 1. Here, all these five indices are close to 1. The obtained GFI and AGFI values are closer to 1. In summary, according to the mentioned indices, the confirmatory factor analysis model for five subscales of sense of meaningfulness in the job, sense

of competence in the job, sense of having the right to choose, sense of being effective and sense of participation with others was confirmed.

Table 6. Cronbach's alpha coefficients for Connor & Davidson's (2003) Resilience Scale

Reliability coefficient quoted by Connor & Davidson's (2003)	Standard deviation	Mean	Reliability coefficient (α)	Scale
0/91	9/654	58/23	0/886	Resilience

Exploratory factor analysis: In order to know if the sample is appropriate for analysis or not, two basic indices of the factor analysis were examined. To investigate the adequacy of sampling, KMO measure was used and Bartlett's test was also used to examine the significance of the correlation matrix. Kaiser-Meyer-Olkin measure of sampling adequacy index was 0.762 and the significance of Bartlett's test of sphericity ($P \leq 0.001$, $df = 279$, $\chi^2 = 973.02$) showed that the correlation matrix and sample were suitable for this analysis. Moreover, in the anti-image matrix, diagonal values of correlation (KMO) were checked for each variable, which were not less than 0.5. Therefore, there was no need to remove any item. In the reproduced correlation matrix, residual was also very small, confirming both the ability to become factor and factor analysis as a good solution. The principal component analysis was selected and extracted using Ablymyn method due to the correlation probability between the factors. The confirmatory analysis model was also used to confirm the structure of resilience-scale factors. In this research, confirmatory factor analysis was performed using Lisrel 8/8 software on a five-factor model of resilience scale. The maximum probability method was used for model estimation and the following indices for model fit. The evaluation of the fit indices confirmed the five-factor model of resilience scale. The results are represented in Table 7.

Table 7. Summary of goodness of fit indices for resilience scale

AAGFI	GFI	CFI	NNFI	NFI	RMR	RMSEA	p-value	/df χ^2	DF	χ^2
0/83	0/84	0/91	0/92	0/90	0/08	0/07	0/00	3/23	279	737/12

One of the most important fit statistics is the Chi-square statistic. This statistic measures the magnitude of the difference between observed and estimated matrices. To accept the model, Chi-square/degree of freedom must be below 3 (Kline, 1998). This statistic is very sensitive to sample size, and in samples larger than 100 it is usually significant and therefore is not considered as a suitable index for model fit. As seen in the table, this value is greater than 3. The value of RMSEA index for models with very good fit is below 0.05, and values above 0.08 represent a reasonable error in the population.

Table 8 shows the correlation matrix of the studied variables. The highest correlation coefficient was for the relationship between information technology and professors' empowerment ($P \leq 0.01$, $r = 0.72$), resilience and empowerment components for professors ($P \leq 0.01$, $r = 0.70$) and resilience and information technology ($P \leq 0.01$, $r = 0.66$). The lowest correlation coefficient was between professors' empowerment and their sense of meaningfulness in the job ($P \leq 0.01$, $r = 0.25$).

Table 8. Correlation matrix of the studied variables

Sense of meaningfulness in the job	Sense of competence in the job	Sense of having the right to choose	Sense of being effective	Sense of participation with others	Information technology	Resilience	Variables
						1	Resilience
					1	** .610	Information technology
				1	** .460	** .660	Sense of participation with others
			1	** 0.430	** 0.25	** .470	Sense of being effective
		1	** 0.500	** .610	** .570	**0.720	Sense of having the right to choose
	1	**0.640	** 0.370	** .590	** .560	** .700	Sense of competence in the job
1	**0.680	**0.630	** 0.360	** .580	** .550	** .690	Sense of meaningfulness in job

* $p \leq 0.05$ ** $p \leq 0.01$

Testing the relationship between variables in a sample of 280 people was first drawn up and investigated in the form of a proposed conceptual model and the results are represented in Figure 2.

Table 9. Summary of goodness of fit indices for the final model

AAGFI	GFI	CFI	NNFI	NFI	RMR	RMSEA	p-value	df / χ^2	DF	χ^2
0/95	0/99	1/00	0/99	1/00	0/021	0/056	0/131	1/71	279	5/13

Table 1.9 shows goodness of fit indices for the final model. Considering the criteria used in the previous sections for the model fit and the results of the table, it can be concluded that the general goodness of fit indices indicate very good fit of the information technology model on the empowerment components.

Table 10. The direct, indirect and total coefficients in the final model of the traditional education, path coefficients and their significance

r^2	Total effect	Indirect effect	Direct effect	Variables
0/60	** (10/74) 0/68 ** (7/22) 0/68		** (10/74) 0/68	Resilience
0/46	** (22.9) 0/67 ** (4/81) 0/73	** (5.5) 0/61 ** (4/81) 0.73	** (4/47) 0/67 ** (6/48) 0/73	Information technology Sense of participation with others
	-2/14) 0/72		-2/14) 0/72	Sense of being effective
	** (6/45) 0/69		** (6/45) 0/69	Sense of having the right to choose
	** (8/39) 0/71	** (6/19) 0/71	** (3/19) 0/71	Sense of competence in the job
0/56	** (5/82) 0/68	** (4.79) 0/68	** (3/5) 0/68	Sense of meaningfulness in the job

* $p \leq 0.05$ * $p \leq 0.01$

The results of the test represented in Table 1.10 show the path coefficients and their significance for the direct and indirect effects of the variables. In this table, the path coefficients and their significant for the direct and indirect effects of the inner goal orientation variables on the empowerment components, information technology and resilience show that, according to the findings, the direct effect of information technology orientation on the empowerment components is positive and significant (path coefficient of 0.71, $t = 25.15$, $p \leq 0.01$). The indirect effect of information technology orientation on the empowerment components through the mediating role of resilience is also positive and significant (path coefficient, 0.69, t

= 4.79, $p \leq 0.01$). The indirect effect of information technology orientation on the professors' empowerment through resilience mediation is positive and significant (path coefficient, 0.71, $t = 4.81$, $p \leq 0.01$). The direct effect of the sense of participation with others orientation on the information technology is also significant (path coefficient, 0.70, $t = 7.22$, $p \leq 0.01$). As shown in the table, the direct effect of information technology on the sense of having right to choose is significant (path coefficient, 0.20, $t = 3.19$, $p \leq 0.01$). The direct effect of information technology on the sense of being effective is positive and significant (path coefficient, 0.71, $t = 3.19$, $p \leq 0.01$). The indirect effect of information technology on the sense of being effective is also positive and significant (path coefficient, 0.68, $t = 6.19$, $p \leq 0.01$). The direct effect of information technology on resilience is positive and significant (path coefficient, 0.68, $t = 10.74$, $p \leq 0.01$). Also, the indirect effect of information technology on resilience is significant and positive (path coefficient, 0.68, $t = 5.53$, $p \leq 0.01$). The direct effect of resilience on the sense of meaningfulness in the job and the sense of competence in the chosen job is positive and significant (respectively, path coefficient, 0.68, $t = 0.66$, $t = 6.45$, $p \leq 0.01$ and path coefficient, 0.71, $t = 5.09$, $p \leq 0.01$). Moreover, the indirect effect of information technology on the empowerment components through resilience mediation is positive and significant (path coefficient, 0.67, $t = 2.69$, $p \leq 0.01$) and finally, the direct effect of information technology on the empowerment components is positive and significant (path coefficient, 0.70, $t = 3.09$, $p \leq 0.01$). The direct effect of resilience on the sense of having right to choose, sense of being effective, and sense of participation with others is positive and significant (respectively, path coefficient, 0.69, $t = 6.48$, $p \leq 0.01$; path coefficient, 0.72, $t = 5.06$, $p \leq 0.01$ and path coefficient, 0.73, $t = 5.11$, $p \leq 0.01$). Also, the indirect effect of information technology on empowerment components through resilience mediation is positive and significant (path coefficient, 0.69, $t = 2, 43.2$, $p \leq 0.01$) and finally, the direct effect of information technology on the empowerment components is positive and significant (path coefficient, 0.70, $t = 3.09$, $p \leq 0.01$).

5. Discussion

The overall aim of this study is to present a model based on the impact of information technology on the components of professors' empowerment with mediating role of social resilience in the Payame Noor University of Mazandaran province. The theoretical framework of this study is information technology perspective and empowerment components related to resilience that affects the information technology and the components of professors' empowerment in the Payame Noor University of Mazandaran province. The results obtained from the fit of the suggested conceptual model of research show that information technology and the components of empowerment mediate the effects of resilience on empowerment components and show their mediating role very well. In fact, the relationship between the exogenous variables of the model and the empowerment components is under the influence of information technology. This finding was expected based on the theoretical and research foundations and corresponded to the information technology perspective. In the information technology perspective, variable of resilience is effective on the empowerment components, and professors need the information technology skills to be successful in their work, and the components of empowerment simultaneously and by interacting with each other explain information technology and resilience. According to the theory of empowerment, sense of meaningfulness in the job, sense of competence in the job, sense of having the right to choose, sense of being effective and sense of participation with others explain about how well they are doing their tasks and the value they put in their activities (belief in assignment value) and their goal orientation. Therefore, according to this theory, performance is affected by empowerment. To exactly examine the model, the main hypothesis was investigated through the sub-hypothesis. It seeks to explore the relationship between information technology

and empowerment components. The results showed that the direct effect of information technology on the empowerment components was positive and significant. Also, the indirect effect of information technology on the empowerment components through resilience mediation was also positive and significant. These findings are consistent with the results of previous studies (such as Valipour, 2017, Mohsenzadeh 2016, Alinejad 2015). The orientation of information technology suggests a learner's emphasis on resilience. The findings showed that direct effect of information technology orientation on the resilience was positive and significant. These findings are consistent with the results of Ork et al. (2016), Mohsenpour et al. (2016) and Rahmani (2014). The results showed that direct effect of information technology orientation on the resilience is not significant, but the indirect effect of information technology orientation on the components of professors' empowerment through resilient mediation is positive and significant. These results are consistent with the findings of Halversen (2013), Ork et al. (2016), Mohsenzadeh (2016). In explaining the positive relationship between information technology and resilience, it can be concluded that the orientation of information technology attracts the attention of professors to the mastery and skill learning in their activities, their controllability, achievement of competence in those activities and their intrinsic value and thus leads to a belief in the expectation of success (self-efficacy) in the learner. Also, the attention and orientation of professors towards the mastery and skill learning in their tasks and activities increase their appreciation, control and recognition in the learning process and, in fact, increase the use of information technology. Therefore, a positive relationship and indirect effect between information technology and professors' empowerment through resilience mediation is expected. The direct effect of resilience on the empowerment components was investigated. The orientation of resilience reflects the emphasis of professors on the score and the approval of others. Findings showed that direct effect of resilience orientation on empowerment components was significant. But indirect effect of resilience orientation on the empowerment components was also significant. The results of the significant effect of resilience orientation on the empowerment components are consistent with the results of studies by Mohsenpour et al. (2016) & Alinejad (2015). The results of the significant effect of the resilience orientation on the empowerment components are consistent with the results of Ork et al. (2016) & Wang et al. (2015). Therefore, some of the professors try to achieve competency through empowerment. In fact, these professors use less resilience. Therefore, the empowerment orientation indirectly affects through resilience. As it is seen in the model, all the paths of the effect of the exogenous variables on endogenous variables and endogenous variables on exogenous variables are significant at the level of $\alpha = 0.05$. Table 9 shows the direct, indirect and total effects of all the variables studied in the final model, path coefficients, and their significance. In the table, the numbers in brackets are the significance values of t and the numbers outside brackets are standardized path coefficients. As seen, all direct and total effects of all endogenous and exogenous variables are at the significance level ($p < 0.05$). Also, all indirect effects of exogenous and endogenous variables on endogenous variables are significant. In the final model of information technology and professors' empowerment variables, the highest path coefficient is first for the path between the information technology and the professors' empowerment components (0.72) and then for the path from the components of professors' empowerment to resilience (0.71). Research limitations are as follows: 1. Due to the fact that this research has been carried out in the statistical population of the professors of Mazandaran Payame Noor University, so it is necessary to cautiously extend these results to the other universities or organizations. 2. The tool used in the present study was questionnaire. Although the used questionnaires were standard and their validity and reliability had been confirmed in several studies, but there are still certain limitations that this measuring instrument has in this regard. 3. Many factors affect the components of empowerment, but usually due to time, facilities and costs, and ... researchers must inevitably limit the scope of the research. In the present study, this issue applies and among many factors influencing information technology, the researcher examined the empowerment components of professors through resilience mediation. Therefore, caution should be maintained in explaining and interpreting the results.

References

- Abtahi H, Abbasi S. (2017). Empowerment of Personnel. *Journal of Management Research and Training Institute*. 5(2):110-118.
- Abujaradeh H, Sereika S M, Cohen S M, Helgeson V. (2018). Does Gender Moderate the Relations between Shared Responsibility and Health Outcomes among Adolescents with T1D. 1:1123-1134.
- Alwani M, Teimournejad K. (2014). *Management Information Systems*. Hamoon Software Publications, Second Edition.
- Arzaghi Rostami A. (2016). System of Promotion and Evaluation of Employees' Performance. *Tadbir quarterly, Industrial Management Organization Publications*, 114: 1244-1261.
- Babaei A, Yaghinlou M. (2002). Employee Empowerment. *Tadbir Magazine*. 129:1363-1380.
- Bahadori Khosroshahi J, Alilu M M. (2012). Investigating the Relationship between Identity Styles and the Meaning of Life in Students. *Psychological Studies of Al-Zahra University*, 8 (2): 143-164.
- Bahadori Khosroshahi J, Babapour K J. (2012). The Relationship between Identity Styles and Perfectionism with Happiness in Students. *Psychology Journal, Sixteenth Year*, 1:36-50.
- Bahadori Khosroshahi J, Hashemi Nosratabad T. (2011). Relationship between Hopefulness and Resilience with Psychological Well-being in Students. *Thought and Behavior*, 22 (6): 41-50.
- Bahan K, Diana H. (1998). *Familiarity with Information Technology*. Publications of the Organization for the Study and Compilation of Humanities Books of Universities (SAMT), First Edition.
- Beheshtian M & Abolhasani H. (2005). *A Comprehensive Approach to the Theory, Application and Design of Management Information Systems*. Pardis Publications.
- Beirami M. (2010). Comparison of identity styles and identity types in male and female students. *Journal of Psychology, Tabriz University*, 5(20): 28-46.
- Bowen David E, Lawler E. (2013). The Empowerment of Services Workers, *Sloan management*. 33:31- 39.
- Conger Jay, Kanungo Rabindra N. (2012). *The Empowerment Process: Integrating Theory and Practice*, Academy of Management review.
- Davenport T H. (2010). *The New Industrial Engineering: Information Technology and Business Process Redesign*. Sloan Management.
- Denton W, Kleiman S. (2011). "Jobenure as a Moderator of the Relationship between Autonomy and Satisfaction". *Applied H.R.M.*
- Eskandari M. (2013). *Designing and explaining the model of empowerment of managers in convoys of pilgrimage organization*. MA thesis, Tehran, Tehran University, Faculty of Management.
- Izadi S, Karimi S. (2008). A Survey on Information Technology Training Courses in Improving the Performance of Employees. *Journal of Humanities and Social Management*, 4 (31):11-25.
- Khani M, Salami Mohammad Abadi F, Dashtibanzadeh S. (2014). The relationship between mental health and Happiness with students' academic achievement. *Culture at Islamic University*, 2 (15): 46-63.
- Maccoby M R. (2013). Thinking Empowerment. *Research Technology Management Journal*, Vol. 42, Issue 5.
- Scott D, Sintiya T. (2014). *Employee Empowerment*. Karaj, Management Research and Training Institute Publications.
- Torban E. (2012). *information Technology for Management*. Wily Interanagonal. Edition. I.S.B.N.
- Utarkhani A. (2011). Influence of Information Technology and Information Systems on Organizational Communications. *Management Message*, No. 46.
- Yazdani, B. (2014). The Mediating role of resilience in the relationship between emotional intelligence and general intelligence with life satisfaction. *Journal of Contemporary Psychology*, 2 (2): 12-26.