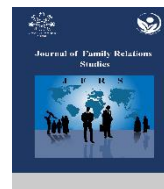




Contents lists available at <https://ecc.isc.ac/showJournal/39795>

Journal of Family Relations Studies

Journal home page: <http://jhfs.uma.ac.ir/>



Research Paper

Modeling the Role of Organizational Ethics Atmospheres and Work-family Conflict in Cyber Loafing of Academic Staff with Artificial Neural Network (ANN)



Crossmark

Ebrahim Aryani Ghizghapan^{1*} & Narges Azadi²

1. PhD of educational administration. Alborz General Directorate of Education - District 2 of Karaj, Iran.

2. M. A in educational sciences, cultural working in Kermanshah education. Kermanshah, Iran.

Use your device to scan and read article online



Citation: Aryani Ghizghapan, E. & Azadi, N. (2023). [Modeling the Role of Organizational Ethics Atmospheres and Work-family Conflict in Cyber Loafing of Academic Staff with Artificial Neural Network (ANN) (Persian)]. *Journal of Family Relations Studies*, 3 (10): 4-16. <https://doi.org/10.22098/jfrs.2023.13173.1131>

doi [10.22098/jfrs.2023.13173.1131](https://doi.org/10.22098/jfrs.2023.13173.1131)

ARTICLE INFO:

Received: 2023/06/20

Accepted: 2023/07/22

Available Online: 2023/08/30

Key words:

Deviant Behavior, Cyber Loafing, Organizational Ethics atmosphere, work-family Conflict, Artificial Neural Network

ABSTRACT

Objective: The purpose of this study was to modeling the role of organizational ethics atmospheres and work-family conflict in cyber loafing.

Methods: Methodology of the research in terms of the strategy was quantitative-field and in terms of analytical, was descriptive. The statistical population of this study included all staff of Universities affiliated with the Ministry of Science at four levels of international, national, regional and local levels of performance across the country. The research data were collected from 430 staff members who were selected by multi-stage cluster sampling method. The sample size according to the Kregci-Morgan model and with error $\alpha = 0/05$, was considered 430 persons. To collect data Cyber Loafing Questionnaire of Bella et al (2006), Organizational Ethical Atmospheres Questionnaire of Victor and Cullen (1988) and work-family Conflict Questionnaire of DuBrin (1985) was used. Validity of the tools was confirmed by the professors of education and psychology. Data were analyzed by artificial neural network with multilayer perceptron (MPL) method.

Results: The results showed modeling the organizational factors affecting on cyber loafing has an input layer with seven units and a hidden layer with one unit and the artificial neural network is well able to predict the jumps and the process of cyber loafing of academic staff based on organizational factors of organizational ethics atmospheres and work-family conflict.

Conclusion: It is necessary to pay attention to these components and their effects on the organization human resource behavior and avoiding deviant behavior.

1. Introduction

The role and importance of human resources in the development and growth of educational organizations is not hidden from anyone. In some cases, employees may tend to behave in ways that do not comply with organizational norms and thus threaten their health and that of other employees. The emergence of such behaviors, which are called deviant behaviors from the perspective of organizational behavior, affects the

level of development of employees and the success of the organization (Baghbanian & Khammaria, 2013). According to the definition, deviant work behaviors are those behaviors that violate organizational norms and norms, threaten the health of the organization, the employees working in it, or both (Harter et al., 2019). Deviant behaviors have three distinct characteristics: a) they are done intentionally and consciously;

*Corresponding Author:

Ebrahim Aryani Ghizghapan

Address: PhD of educational administration. Alborz General Directorate of Education - District 2 of Karaj, Iran.

E-mail: e.aryani.sh@gmail.com

b) violate organizational norms and c) threaten the health of individuals or the organization. According to experts, deviant work behaviors not only affect the performance of organizations, but also affect interpersonal relationships and the spirit of cooperation of employees (Kish-Gephert et al., 2010). During the last two decades, significant research has been done on the antecedents and consequences of deviant work behaviors. Although studies in the field of deviant behavior are often conducted in private and for-profit companies (Nair & Bhatnagar, 2020); But it is necessary to address this issue in educational organizations including universities (Sheikh et al., 2015). Deviant behaviors in educational organizations that are responsible for the important task of educating the country; It costs a lot. Although the studies and research done are related to Western countries (Lim, 2005; Lim & Teo, 2005; Lara et al., 2006; Blanchard & Henle, 2008; Liberman et al., 2011; Restubog et al., 2011; Lim & Chen, 2012; Baturay & Toker, 2015., Yilmaz et al., 2015; Akbulut et al., 2017) but this issue as a threat, is also relevant for domestic educational organizations (Jandaghi et al., 2015). The prevalence of such behaviors in the organization and the costs resulting from these behaviors reveal the importance of a detailed and systematic study of this phenomenon. In addition, in every society, the educational system and organizations related to education are considered an important part. This system has extensive and significant effects on the body of society and social, cultural, etc. fields and is the basis for intellectual growth and development as well as the maturity and realization of human capacities (Ebrahimi & Moshabaki, 2014). Considering that universities are known as one of the most important educational organizations, the occurrence of any deviant behavior is a deviation from the organizational and working standards, which causes a waste of scarce human resources and as a result, reducing the services that can be provided and preventing the education system of the country from its ultimate goal.

Despite the progress of new technologies and its spread, one of the deviant behaviors that have become popular in today's organizations is cyber loafing (Akin et al., 2017; Yildiz et al., 2015). Today's organizations need computers and their potentials to work faster and more effectively to deal with global challenges (Huma et al., 2017). To succeed in such a challenging and competitive environment, organizations must be in tune with the most common and useful technological tool, which is the computer and its capabilities. Regarding this technology, like any other new innovation, there

are debates and disagreements about its advantages and disadvantages. Employees may spend their time on unrelated activities instead of working by having the internet at work. As one of the organizational deviant behaviors in the theoretical literature (Lim, 2005; Lim et al., 2005; Lara et al., 2006; Blanchard & Henle, 2008; Liberman et al., 2011; Restubog et al., 2011; Lim et al., 2012; Baturay & Toker, 2015; Yilmaz et al., 2015; Akbulut et al., 2017); cyber loafing is usually defined as the behavior of abusing Internet resources and using it to check personal email and surf the web (Lim, 2002, Blanchard & Henle, 2008, Liberman et al., 2011; Jia et al., 2013; Askew et al., 2014; Aghaz & Sheikh, 2016). The subject of cyber loafing was used for the first time by Tony Cummins in the New York newspaper in 1995 (Akin et al., 2017). Based on the classification made by Robinson & Bennett in 1995 and what Lim (2002) wrote in the theoretical literature of this subject, two minor and serious dimensions can be considered for cyber loafing (Keklik et al., 2015). In defining the serious type of cyber loafing, experts consider it to include behaviors such as online games and time spent on different sites; While, the partial dimension of this behavior includes sending personal letters (Blanchard & Henle, 2008). Based on the studies of Lim et al (2005) and Sheikh et al (2015), serious cyber loafing behaviors appear less. The most common cyber loafing behaviors in the workplace are related to e-mail, using virtual social networks, spending time on social and other entertainment sites, online shopping, banking operations, downloading software, searching for employment. and news messages (Ugrin & Pearson, 2013, Akin et al, 2017).

According to researchers' studies, cyber loafing has a double effect (Lim, 2002, Henle et al., 2009, Baturay & Toker, 2015). According to the technological opportunities provided to employees, they may use the Internet as a necessity for organizational issues or use it as a means of gaining pleasure for personal issues. Revealing the quality of cyber loafing and understanding how to use the Internet by the employee; It is a difficult task (Askew et al., 2014). Although the effect of the use of the Internet on organizations is still relatively unknown (Liberman et al., 2011), it is clear that the Internet, as one of the tools of the present age, has benefited organizations from many advantages. By using the Internet, (Akin et al., 2017) and the quality of communication improves qualitatively and quantitatively (Huma et al., 2017). On the other hand, technology that is not used for its original purpose may cause inefficiency in the use of time and human resources (Kaplan & Ogot, 2012).

By abusing the organization's Internet resources, not only the productivity can be reduced, but also the concerns related to privacy violations may be added (Lim, 2005). It also causes the loss of intellectual property, increases security threats and creates legal issues (Huma et al., 2017). The final result is that improper use of the Internet creates a problem called cyber loafing (Yilmaz et al., 2015). As one of the most common time-wasting behaviors at work, cyber loafing has become an important issue (Askew et al., 2014; Akbulut et al., 2016). According to the studies of Lim et al (2005), Lieberman et al., (2011), Jia et al (2013); 90% of the employees search the web pages during work with the aim of entertaining themselves. According to the announced statistics, in Turkey, the rate of internet usage at work is 36% (Yildiz et al, 2015). Due to cyber loafing, the productivity of employees decreases between 30 and 40 percent, so that in the last two decades, the business costs imposed in this way to the United States have been estimated at 5.3 billion dollars. Today, this figure has increased to 183 billion dollars worldwide (Jandaghi et al., 2015). In addition, cyber loafing can cause employee dissatisfaction and failure of financial transactions (Sheikh et al., 2015). It also has a significant effect on burnout (Aghaz& Sheikh, 2016) and dismissal (Akin et al., 2017). Statistics show that 20 to 30 percent of companies have fired employees who engaged in cyber loafing (Blanchard & Henle, 2008). Also, factors such as information theft, loyalty and trust threaten organizations (Jandaghi et al., 2015). Nevertheless, some researchers evaluate cyber loafing as useful (Akbulut et al., 2016). According to the studie of Lim et al (2012), in some cases, cyber loafing may be useful for treating stress and monotony, and in other words, it can have a restorative and entertaining role for the employee's spiritual environment (Akbulut et al., 2017). In fact, during internet activities not related to work, cyber loafing behaviors can provide users with the possibility of quick communication and access to information through the source. Employees can complete their tasks more efficiently and accurately by benefiting from this speed of information access (Glassman et al., 2015).

Since a strict policy on the use of the Internet can negatively affect the level of job and work-family satisfaction and fairness, the effect of this point to retain talented employees should not be overlooked (Askew et al., 2014). In the same way, it is undeniable to study a more effective solution for those who agree with the organization's policies regarding cyber loafing and have direct access for them (Henle and et al., 2009). Therefore, instead of looking for ways to prevent the use of the Internet by ignoring the needs of employees today, in order to create a balance between the needs of the

organization and employees, it should be investigated why employees have cyber loafing (Askew et al., 2014). Akin et al., 2017). It seems that reasons such as reducing stress, having fun to get away from monotony, and understanding injustice in the work environment cause deviant behaviors of employees (Akin et al., 2017; Wolfe & Piquero, 2011). Mainly, reasons such as reducing stress and increasing job and work-family satisfaction (Baturay& Toker, 2015), perceived organizational injustice, fatigue and technological characteristics of employees (Yalmaz et al., 2015) are among the reasons why employees turn to cyber loafing. In this regard, Jandaghi et al (2015) divide the reference of cyber loafing into three main categories: organizational factors, policies and justice. According to researchers, job and work-family demands, role conflict, individual factors are the causes of employees engaging in cyber loafing (Baturay& Toker, 2015; Akbulut et al., 2017). In addition, with technological advances and intense work pressure, employees who cannot balance their work and life and have to work at home; It is natural for them to spend their time on non-work activities at work (Soh et al., 2017). With the continuation of the current trend, in addition to a normal employee, cyber loafing is experienced by all knowledge workers (Yalmaz et al, 2015; Glassman et al., 2015) and in all knowledge-based organizations (Akin et al., 2017).

The behavior of employees in the organization is affected by many individual and organizational factors. In this context, Kaviani & Pourashraf (2016) in their research considered work-family conflict as one of the individual factors affecting the organizational behavior of employees. Conflict is an inevitable aspect of human daily life. Major trends such as continuous change, greater diversity of staff composition, more teamwork, less face-to-face communication (more electronic interaction) and more intercultural exchanges cause conflict (Robert & Kinicki, 2010). There are different views about work-family conflict. The first view is the view of classical management theorists. Proponents of this view believed that any conflict is bad and should be avoided. According to this group, restless people who are few inside the organization create conflict, so they should be fired. The experts of this scientific management, such as Taylor, believed that all conflicts ultimately threaten the power and authority of management. Therefore, they should be prevented or quickly resolved (Wayne et al., 2010). The second view is the view of the school of human relations. Proponents of this theory believed that conflict is inevitable and cannot be prevented, but it can be minimized. The group suggested that managers learn how to manage and live with conflict. The third point of view was put forward by interactionists.

Interactionists consider conflict not only destructive, but also useful. This group believes that moderate conflict is good and some of it is necessary for effective performance (Parsaiyan & Aarabi, 2016). Conflict is a phenomenon that has positive and negative effects on the performance of individuals and organizations. The correct and effective use of conflict improves performance and raises the level of health of the organization, and its ineffective use reduces performance and creates conflict and convulsions in the organization. The ability to deal with conflict and manage it plays a valuable role in the success of individuals and organizations. If the conflicts are constructive, they cause new and creative thoughts and provide the context for change and innovation and constructive transformation in the organization and ultimately help the management to achieve its organizational goals (Akhoond lotfali et al., 2011). Researches have shown that constant conflict in the work environment and work-family conflict while creating negative effects on people's physical and mental health; It destroys the working atmosphere, increases the rate of absenteeism, reduces cooperation and participation in work, and reduces effectiveness (Turani et al., 2014). Given that the mean score of work-family and family-work conflict in female employees is high, educational interventions to improve the balance of work-family and vice versa in working women are recommended to officials and planners. Therefore, the importance of understanding the issue of conflict and its effects on the performance of employees can provide the necessary knowledge for the managers of the organization to make appropriate decisions (Ghafourian & Flamarzi, 2011).

In their research, Ghasezadeh et al (2014) listed Organizational ethical atmosphere as one of the effective factors in the behavior of the organization's employees. It is obvious that one of the ways to reduce deviant behaviors in the workplace is to increase the level of ethics and pay attention to organizational ethical atmosphere. Ethical atmosphere is a common belief among employees about the existence of ethical procedures and policies in the organization and has a psychological aspect. While organizations include many atmospheres, ethical atmosphere is important for organizations and affects the behavior of employees. Organizational ethical atmosphere includes the perception of right and wrong in the work environment and provides norms for accepting and not accepting organizational behaviors (Rahimnia & Nikkha, 2012). Organizational ethical atmosphere significantly affects the ethical behavior of employees in the work environment. In this regard, moral perceptions that are

influenced by the moral atmosphere within an organization predict not only valuable and ethical behaviors but also unethical behaviors in the workplace (Deshpande et al., 2000). For example, Peterson (2002) has shown in his research that deviant behaviors can be well predicted through the dimensions of organizational ethical atmosphere. In order to carry out their organizational affairs, in addition to organizational and legal standards, organizations need a set of ethical and value guidelines that will help them in their administrative behaviors and actions and a kind of coordination and unity of action in moving towards in way of method. It enables collective and general benefits. One of the important factors in the formation of intra-organizational communication and employee conditions is the moral atmosphere, which has a significant impact on organizational productivity (Elci& Alpkhan, 2009). Organizations pay attention to ethical issues because people expect them to show high levels of ethical standards. High levels of ethical standards protect people who work in the organization or work in risky situations (Okpara & John, 2008). According to the definition of organizational ethical atmosphere, it shows the moral values, behavioral expectations and the influence of ethics on the decisions of the organization's members, and it means the existence of ethical options for the selection and actions of employees. There are different types of organizational ethical atmosphere in the organization, which has different effects on the behavior of employees in the organization's activities. Employees who feel that the organization has an ethical atmosphere, spend a lot of effort not to use misleading methods (Ocdwyer & Madden, 2006). Therefore, ethical atmosphere makes employees to show a positive view of their job and work-family and spend more time in the organization and less think of leaving it (Schwepker & Good, 2004). Employees who feel the ethical atmosphere governs the organization, consider their organization's relationships and interactions to be fair, and this increases employee satisfaction and commitment (Lewis et al., 2014). Due to the fact that ethical atmosphere has attracted a lot of attention in recent years and discovering the relationship between the ethical atmosphere of the organization and the behaviors of employees is considered as one of the most important topics in organizational studies; Understanding the relationship between organizational ethical atmosphere and deviant cyber loafing behavior of employees seems necessary in every organization.

In short, deviations in the work environment have

become an important issue in various organizations, including educational organizations, and have economic, social and psychological effects (Bodankin & Tziner, 2009). Also, various researches show that technological changes have led to increasing levels of deviant behaviors in the workplace (Rahimi & Abbasi, 2015). On the other hand, during the last one or two decades, the introduction of new technologies, especially the Internet in organizations, have had negative consequences in addition to positive consequences, and one of the common negative consequences in this field was deviant behavior of Cyber loafing in employees. The emergence of cyber loafing behavior of employees entails a lot of costs for the organization and in general, it endangers the health of the organization and its employees and the achievement of the organization's desired goals (Ebrahimi et al., 2014). In addition, despite the strong emphasis on the predictive power of various individual and situational variables in explaining organizational deviant behaviors, the link between these variables in explaining the aforementioned behaviors has received less attention in empirical studies (Blanchard & Henle, 2008). Another noticeable gap that is observed in the researches determining the antecedents of deviant behaviors in the organization is ignoring the role of individual and organizational variables in the deviant behavior of cyber loafing among university employees. Therefore, in the current research, one of the common negative consequences of the introduction of new technologies into the organization under the title of Cyber loafing is analyzed as one of the manifestations of new deviant behavior and it is determined whether the factors of Organizational ethical atmosphere (With the five subscales of altruistic climate, legal and principled climate, legal climate, instrumental climate, and independent climate) and work-family conflict, does it have an effect on employees' cyber loafing?

2. Materials and Methods

The current research was quantitative in terms of the main strategy, applied in terms of purpose and descriptive-correlation type. In 2020, the statistical population of this research was made up of the staff of comprehensive public universities of the country. The sampling method was a multi-stage cluster type. For this purpose, among the comprehensive state universities of the country, according to the latest ranking table of the universities and higher education institutions of the country, provided by the Ministry of Science, Research and Technology, to the first four levels (with international performance level), the second level (with national performance balance), the

third level (with regional performance balance) and the fourth level (with local performance balance) are divided; Three universities were selected from the first, second and third levels, and one university was selected from the fourth level (due to the small number). A total of 10 universities were selected as a statistical sample. After selecting the universities among their selected faculties, the employees were selected for study. The overall sample size based on the Kregci-Morgan table, considering the error $\alpha = 0.05.$, and the clustering of the sampling method (which increases the possibility of error) 430 people were considered and this number was distributed proportionally among the selected universities in four levels. Among the 430 distributed questionnaires, 427 questionnaires could be analyzed. Questionnaires were administered individually by the researcher for two months, and ethical considerations were taken into account for conducting the research. This means that in order to collect data by observing ethical considerations, such as obtaining permission to conduct research from the studied universities, obtaining consent from the participants to participate in the research, confidentiality of people's information, no coercion to continue the work process and Availability of the researcher to answer the questions, the questionnaire was distributed among the employees.

Measuring tools:

1. cyber loafing questionnaire: To collect data related to cyber loafing from the cyber loafing questionnaire (CLQ) which was compiled and standardized by Blau et al (2006); was used This questionnaire has 16 questions and 3 subscales of aimless surfing on the Internet (1, 2, 4, 6, 11, 16), receiving and sending e-mail unrelated to work (3, 5, 7) and interactive cyber loafing (8, 9, 10, 12, 13, 14, 15). The questions are presented on a 5-point Likert scale. In the study of Blau et al (2006), the construct validity and criterion validity of the tool have been confirmed, and the reliability of the subscales of this tool has been reported to be higher than 0.69 in Cronbach's alpha coefficient. In the present study, the content validity was confirmed by the opinion of three professors of psychology and educational sciences, and its reliability was also obtained with Cronbach's alpha coefficient $\alpha = 0.89.$

2. work-family Conflict Questionnaire: The work-family Conflict Questionnaire compiled and validated by DuBrin (1985) was used to collect data related to the variable of job and work-family conflict. This questionnaire has 20 questions.

The questions are scored in the form of two options (mostly agree and mostly disagree). In research Aliabadi & Khakpour (2014), the content and construct validity of this tool was confirmed and its reliability was reported as 0.81 in Cronbach's alpha coefficient. In the present study, the content validity of the instrument was confirmed by the opinion of three professors of psychology and educational sciences, and its reliability was obtained with Cronbach's alpha coefficient of $\alpha = 0.90$. Organizational Ethical Atmosphere Questionnaire (OEAQ) by Victor & Cullen (1988) was used to collect data related to organizational ethical atmosphere. This questionnaire has 26 questions and 5 subscales, which include: the altruistic (items 1 to 7), the legal and principled (items 8 to 11), the legal (item- items 12 to 15), instrumental (items 16 to 22) and independent (items 23 to 26) atmosphere subscales. The questions are presented in a 5-point Likert scale (strongly agree, agree, have no opinion, disagree and strongly disagree). In.'s research Ghadiri et al (2013), the construct validity of this tool was confirmed and its reliability was obtained in Cronbach's alpha coefficient of 0.79. In the present study, the content validity of the tool was confirmed by the opinion of three professors of psychology and educational sciences, and its reliability was obtained with Cronbach's alpha coefficient $\alpha = 0.80$. It should be noted that due to the complexity of issues

in today's world, the use of new methods has replaced many traditional methods that are no longer able to correctly estimate the current situation. Also, the complexity of the processes has led to problems such as the non-linearity of the relationship between the process parameters and subsequently caused the traditional forecasting methods to be unable to perform or make decisions about them; Therefore, new methods such as artificial neural networks have emerged and been used to analyze these processes (Fatipour Jalilian, Najaba, 2016). Based on what was mentioned, in the present research, the correlation of effective organizational factors on university employees' internet surfing using the artificial neural network (ANN) approach of multilayer perceptron (MLP) networks in each feed- forward was tested.

3. Results

Out of 427 people who answered the questionnaire completely, 43.3% were female and 56.7% were male. The distribution of the investigated employees according to the organization of the place of employment in the universities of Tehran, Shahid Beheshti and Tarbiat Modares (12.5% each), Buali Sina, Kharazmi and Al-Zahra (10.5% each), Kurdistan, Mohaghegh Ardabili and Golestan. (8.2 percent each) and in Maragheh University (5.2 percent).

Table 1. Descriptive indices of the mean and standard deviation of the main research variables (n=427)

General factor	sub scale	M	SD
work-family conflict	-	26.41	5.14
Organizational ethical atmosphere	altruistic atmosphere	21.03	4.26
	Legal and principled atmosphere	11.02	2.25
	legal atmosphere	9.84	1.76
	Instrument atmosphere	11.64	3.01
	independent atmosphere	8.74	1.65
cyber loafing	Wandering aimlessly	19.76	3.93
	Receive and send email	9.99	2.11
	Interactive cyber loafing	23.17	4.25

According to table 1, it can be seen that the component of work-family conflict was 26.41 (± 5.14) among the subscales of organizational ethical atmosphere, the subscale of altruism atmosphere was 21.03 (± 4.26)

and among the following Internet roaming scales had the highest average value of the Internet avoidance subscale with 23.17 (± 4.25).

Table 2. Summary of the process of data separation into learning and test samples in artificial neural network

Sample	N	Percent
Learning	290	67.9
Test	137	32.1
Valid sample	427	100.0
The sample was excluded from the analysis	0	
Total	427	

The summary of the neural network process showed that 290 (67.9%) cases were registered in the learning sample and 137 (32.1%) cases in the test sample. Also,

there were no outliers from the analysis, and all people's information had been used in the network analysis.

Table 3. Artificial neural network information

Input layer	Covariates	1	work-family conflict
		2	altruistic atmosphere
		3	Legal and principled atmosphere
		4	legal atmosphere
		5	Instrument atmosphere
		6	independent atmosphere
		7	Organizational Ethical atmosphere
	Number of nodes	7	
	Covariate application method	Standardized	
hidden layer	Number of hidden layers	1	
	The number of nodes in the hidden layer	1	
	Function function	Hyperbolic tangent	
Output layer	The dependent variable	1	Cyber loafing
	Number of units	1	
	The method of using the dependent variable	Standardized	
	Function function	Identity	
	Performance error	sum of squares error	

Table 3 showed that for neural network training, the forward network was used, which had an input layer with seven nodes or units. The number of input units included the number of covariates plus bias. The

network also had a hidden layer with one node. The output layer also showed the amount of internet browsing of employees.

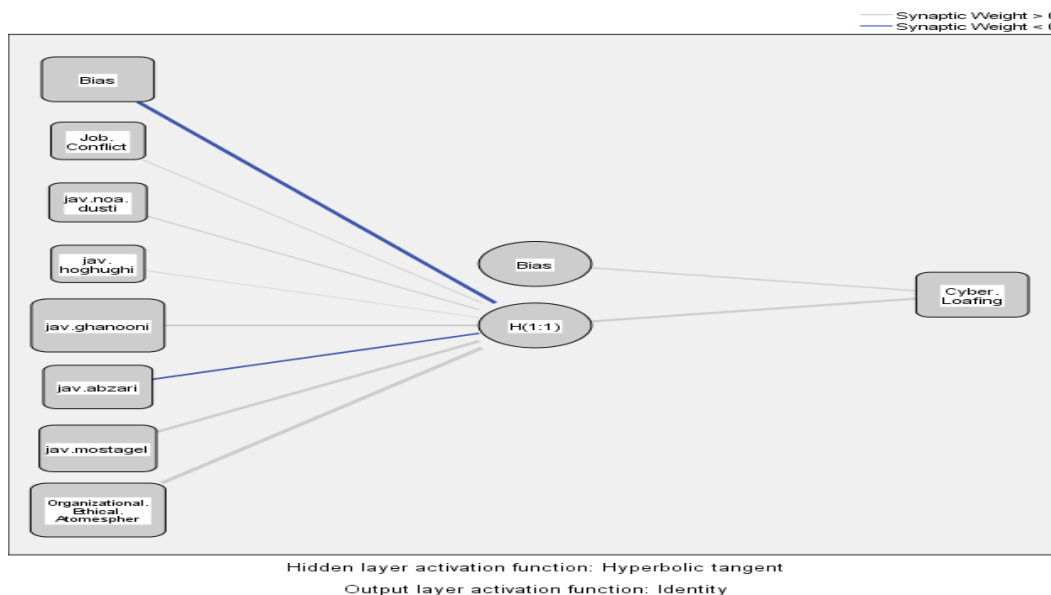


Figure 1. Synaptic weights and neural network layers

Figure 1 showed the neural network layers of this study and the presented synaptic weights. As can be seen, the multilayer perceptron (MLP) network has a hidden layer and a node in the hidden layer. The activation function of the hidden layer is the hyperbolic tangent and the activation function of the output layer is the identification function. It should be noted that in Figure 1, the colored lines indicate the

weights that were activated by the activation function and had a positive synaptic weight, and the light colored lines indicate the negative weights that were activated by the active function. The number of training repetitions is automatically selected by the software until the error starts to increase after decreasing. The network is compiled randomly and irreversibly.

Table 4. Summary of artificial neural network model estimation for employee cyber loafing

Example of learning	sum of squared error	130.213
	Relative error	0.901
Test sample	sum of squared error	58.080
	Relative error	0.939

The results obtained from the estimation of the artificial neural network model using two indicators of mean square error of the model and its relative error in

Table 4 show that the error in the learning sample is 0.901 and in the test sample is 0.939, which is much less than the error It is the usual models.

Table 5. Importance of descriptive variables in artificial neural network model

	Normalized significance	Importance in percent
work-family conflict	0.027	9.1
altruistic atmosphere	0.052	17.3
Legal and principled atmosphere	0.023	7.7
legal atmosphere	0.288	96.0
Instrument atmosphere	0.128	42.6
independent atmosphere	0.181	60.4
organizational Ethical atmosphere	0.300	100.0

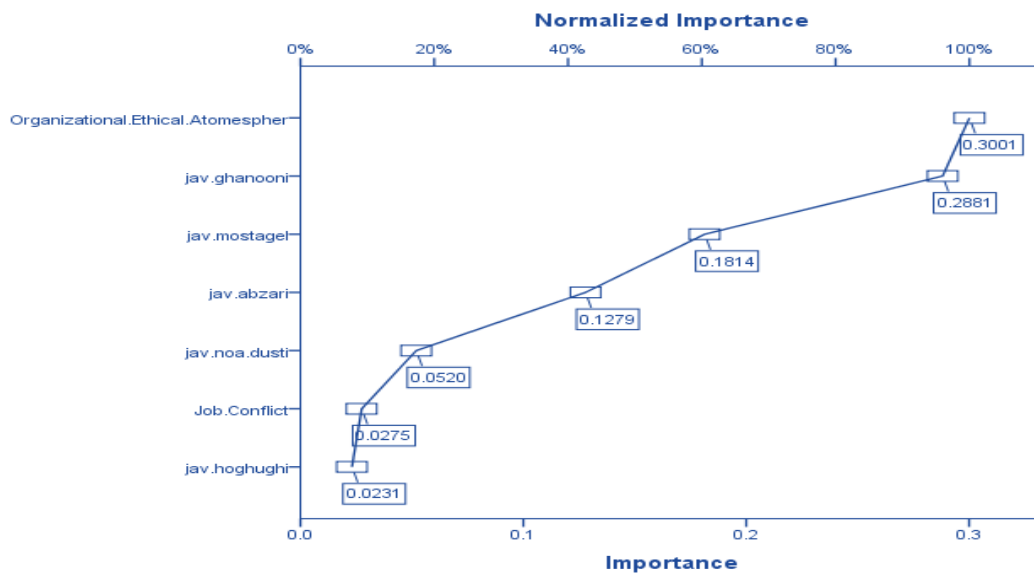


Figure 2. The importance of variables in predicting cyber loafing by artificial neural network method

Table 5 and Figure 2 showed the importance of the input variables in artificial neural network modeling and predicting the amount of inert wandering, which indicated that the atmosphere of organizational ethics (with a normalized importance of 0.300 and an importance of 100%) was more than Job and work-family conflict (with a normalized significance of 0.027 and a significance level of 9.1%) is important in predicting employees' wanderlust using the artificial neural network method. Also, among the subscales of organizational ethics and legal atmosphere (with a normalized significance of 0.288 and a significance level of 96%) has the highest coefficient of importance in the estimation of inertial wandering. The lowest coefficient of importance also belongs to the legal and principled atmosphere subscale (with a normalized

significance of 0.023 and a significance level of 7.7 percent).

Table 6 showed the coefficients of each of the contributing variables in artificial neural network modeling, as well as the coefficients of explanatory variables (input layer), output variable and hidden layer. These coefficients were determined based on the selected artificial neural network. As can be seen, in the input layer, the independent atmosphere subscale with an impact factor of 0.447 had the most positive impact on the first node in the middle layer, and the organizational ethics atmosphere with a factor of -0.562 had the greatest negative impact on the L node in the middle layer. In the hidden layer, the first node has a coefficient of 0.143.

Also, it can be seen that among the two variables of job and work-family conflict and the organization's ethical atmosphere as nodes of the input layer affecting the first node and the output layer, the effect of job and work-family conflict is positive (0.084) and the effect of the organization's ethical atmosphere was negative (562.562). -0). That is, the higher the level of job and work-family conflict among employees in the organization, the more they engage in deviant cyber

loafing behavior and vice versa. Also, the more and better the moral atmosphere prevails in the organization, the less employees tend to deviant cyber loafing behavior and vice versa. In short, Table 6 showed the weight assigned to each of the nodes of the input layer and the hidden layer during the learning stages of this neural network. These weights were the values estimated by the model and the values that the network was able to implement and estimate.

Table 6. Estimation of artificial neural network parameters and the contribution of the effect of variables on inertial wandering

Predictors	Predicted value	
	first middle layer First node/H(1:1)	Output layer Cyber loafing
Input layer	Bias parameter	-0.501
	Job and work-family conflict	0.084
	altruistic atmosphere	-0.131
	Legal and principled atmosphere	-0.055
	legal atmosphere	0.436
	Instrument atmosphere	-0.386
	independent atmosphere	0.447
	organizational Ethical atmosphere	-0.562
hidden layer	Bias parameter	0.143
	First node/H(1:1)	0.437

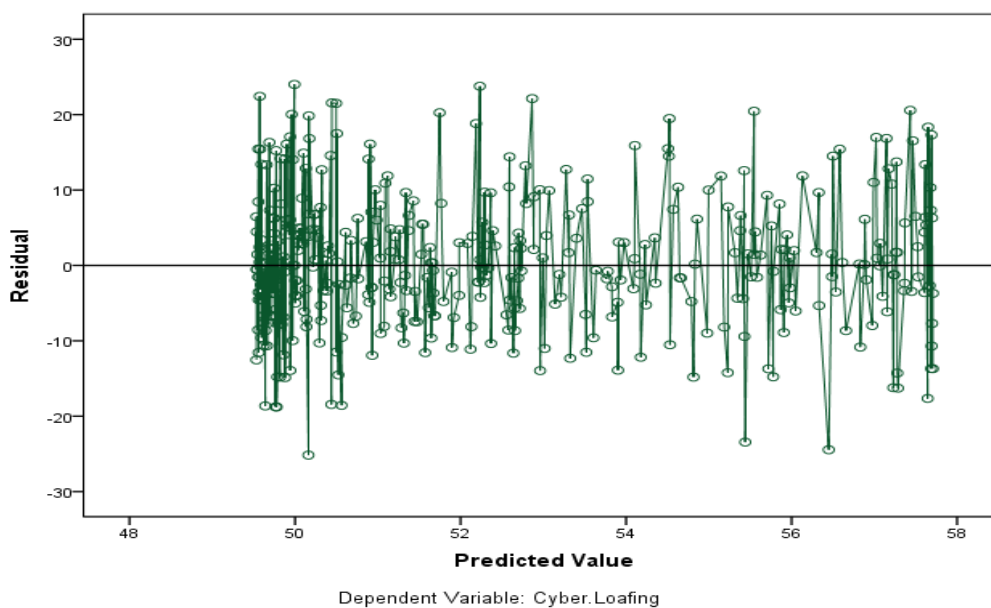


Figure 2. Examining the prediction performance of cyber loafing based on organizational ethical climate and work-family conflict with artificial neural network

In Figure 3, it can be seen how close the prediction of the neural network for cyber loafing was to the actual values of the amount of cyber loafing of university employees. The mentioned figure showed that the neural network was able to predict well the jumps and cyber loafing process of university employees. In the nonlinear model used by advanced neural networks, the estimation efficiency in the two stages of training and testing the model had been very high.

4. Discussion and Conclusion

The research conducted in the field of organizational deviant behaviors showed the prevalence of such behaviors in different organizations. In addition to this, the job and work-family conflict and the moral atmosphere of the organization were among the issues of organizational behavior, the existence of which can control the behavior of employees and affect their organizational performance and productivity.

In view of the mentioned cases, the current research was conducted with the aim of modeling and finding the relationship between the factors of organizational moral atmosphere, job and work-family conflict, their effect on the deviant behavior of cyber loafing among the staff of the country's universities with the approach of artificial neural network. The findings showed that the communication of organizational factors affecting cyber loafing with the artificial neural network had an input layer with seven nodes and a hidden layer with one node. Also, all the subscales of organizational ethical climate and job and work-family conflict are effective in predicting employees' tendency to cyber loafing, and in the meantime, organizational ethical atmosphere had a higher coefficient of importance than job and work-family conflict. In general, the results showed that the artificial neural network is able to identify the jumps and the cyber loafing trend of university employees due to the organizational factors of job and work-family conflict and the moral atmosphere of the organization. In other words, the neural network showed that the combination of the two factors of the moral atmosphere of the organization and job and work-family conflict predicts employees' cyber loafing, and the higher the level of job and work-family conflict and the inappropriate moral atmosphere in the organization, the more employees engage in cyber loafing. This finding is consistent with the research results of Yilmaz et al., (2015); Jia et al., (2013); Robert et al., (2010); Peterson (2002); Akhund et al., (2011); Ghafourian et al., (2011); Turani et al., (2014); Ghasemzadeh et al., (2014); Kaviani et al (2016); and Parsaiyan et al (2016) stating that the organization's ethical atmosphere and job and work-family conflict are effective on employees' behaviors and that deviant behaviors can be well predicted through the dimensions of the organization's ethical atmosphere and work-family conflict. Considering the high potential of the moral atmosphere of the organization and work-family conflict in influencing and controlling the behaviors of employees, including deviant behaviors, the aforementioned agreement seems reasonable and logical.

In line with the explanation of the research, it can be said that with the continuous expansion of computer capabilities and devices based on information and communication technology (ICT), people spend more time interacting with technology. Undoubtedly, the Internet creates countless opportunities for employees to increase their level of knowledge, skills, performance and productivity. The Internet is considered as an information tool for collecting

information and resources used by employees, which improves the performance of employees. This obviously reduces wasted time and increases employee productivity. But in spite of these diverse potentials and opportunities, by misusing ICT, the Internet has become an unproductive resource and a means to fail and shirk responsibility. Such behaviors are undesirable behaviors and are considered a deviation from organizational norms. Despite new technologies, deviant behaviors in the workplace have become a new form; Employees may appear hard at work when they use their computers to chat while they are busy doing personal work on the Internet. In fact, they don't need to move from behind their desk to get out of work or worry about being seen while chatting. This phenomenon can be considered an important risk for the organization. It seems that if by providing correct training and correct definition of job positions, clarifying the goals of each job position for employees, creating job standards and such things, the job and work-family conflict of employees will be resolved the good and bad aspects. If the work space in the organization is distributed in a fair way, the employees will become more committed, they will show a greater willingness to sacrifice for the group and the goals of the organization; On the other hand, when an unethical organizational atmosphere is seen and altruism and legalism are ignored, people show less loyalty and effort and engage in deviant behaviors such as cyber loafing. In other words, the prevalence of job and work-family conflict among the organization's employees and the lack of a suitable moral atmosphere in the organization leads to deviant behaviors such as deviating from work and cyber loafing. Therefore, in order to prevent cyber loafing of employees and neutralize its destructive effects, it is necessary to pay attention to solving all kinds of job and work-family conflicts and creating an ethical atmosphere in educational organizations. In short, it can be said that the prevailing atmosphere of altruism, legal and legal atmosphere, instrumental and independent as the dimensions of the moral atmosphere of the organization and paying attention to the reduction of occupational conflict, will reduce the amount of internet surfing. Therefore, in order to prevent employees from surfing the internet and neutralize its harmful effects, it is necessary to pay attention to the promotion of organizational ethical atmosphere and reduce employee conflict in educational organizations. Also, training and culture building and expert and continuous monitoring of how the organization's employees use virtual space during work and planning for the future can be a basic suggestion for those

involved in the virtual and organizational field. In addition, due to the significant effect of organizational moral atmosphere, job and work-family conflict on the level of cyber loafing of employees, it is suggested to carry out more extensive research in this field and by providing a platform for creating an altruistic and legal atmosphere, non-instrumental and independent in the organization and eliminating the job and work-family conflict of employees, to reduce the occurrence of cyber loafing while doing work.

5. Ethical Considerations

Compliance with ethical guidelines

Compliance with ethical guidelines all ethical principles were considered in this article. The participants were informed about the purpose of the research and its implementation stages. They were also assured about the confidentiality of their information and were free to leave the study whenever they wished, and if desired, the research results would be available to them.

Funding

This research did not receive any grant from funding agencies in the public, commercial, or non-profit sectors.

Authors' contributions

All authors have participated in the design, implementation, and writing of all sections of the present study.

Conflicts of interest

The authors declared no conflict of interest.

Acknowledgments

We express our gratitude to the employees who made it possible to conduct this research with their sincere cooperation.

References:

- Aghaz, A., & Sheikh, A. (2016). Cyberloafing and Job Burnout: An Investigation in the Knowledge Intensive Sector, *Computers in Human Behavior*, 62, 51-60. Doi:10.1016/j.chb.2016.03.069
- Akbulut, Y., Donmez, S., & Dursun, O.O. (2017). Cyberloafing and Social Desirability Bias among Students and Employees, *Computers in Human Behavior*, 72, 87-95. Doi:10.1016/j.chb.2017.02.043
- Akbulut, Y., Dursun, O. O., Donmez, O., & Sahin, Y. L. (2016). In Search of a Measure to Investigate Cyberloafing in Educational Settings, *Computers in Human Behavior*, 55, 616-625. Doi:10.1016/j.chb.2015.11.002
- Akhoond, lotfali P., Hosseini, M.A., Khankeh, H.R., Fallahi Khoshknab, M., & Hosseinzadeh, S. (2011). Study of the effect of emotional intelligence training on nurses' job conflict. *Health Promotion Management Quarterly*, 1 (1), 7-16. [In Persian] <http://jhpm.ir/article-1-23-fa.html>
- Akin, A., Ulukok, E., & Arar, T. (2017). Analyzing the Relationship between Organizational Justice and Cyberloafing: A Study in a Public University. 4th multidisciplinary conference, Prague, Czechia, 29-30 June 2017. https://rsepconferences.com/my_documents/my_files/2_ADNAN_AKIN.pdf
- Aliabadi, S., & Khakpour, M. (2014). Determination of Organizational Conflict Resource Model in Alborz Province's Physical Education Teachers with Emphasis on Modifier Role of Gender. *Applied Research in Sport Management*, 2(3), 105-114. https://arsmb.journals.pnu.ac.ir/article_683.html
- Askew, K., Buckner, J. E., Taing, M. U., Ilie, A., Bauer, J. A., & Coovert, M. D. (2014). Explaining Cyberloafing: The Role of the Theory of Planned Behavior, *Computers in Human Behavior*, 36, 510-519. Doi:10.1016/j.chb.2014.04.006
- Baghbanian, A. W., & Khmeria, M. (2013). Study of deviant behaviors of employees of Imam Ali (AS) Hospital in Zahedan in 2011: a short report. *Journal of Rafsanjan University of Medical Sciences*, 12, 399-408. <http://journal.rums.ac.ir/article-1-1811-fa.html>
- Baturay, M. H., & Toker, S. (2015). An Investigation of the Impact of Demographics on Cyberloafing from an Educational Setting Angle, *Computers in Human Behavior*, 50, 358-366. Doi:10.1016/j.chb.2015.03.081
- Blanchard, A. L., & Henle, C. A. (2008). Correlates of Different Forms of Cyber loafing: The Role of Norms and External Locus of Control. *Computers in Human Behavior*, 24, 1067-1084. Doi:10.1016/j.chb.2007.03.008
- Blau, G., Yang, Y., & Ward-Cook, K. (2006). Testing a Measure of Cyber loafing, *Journal of allied health*, 35(1), 9-17. https://www.researchgate.net/publication/7165535_Testing_a_measure_of_cyberloafing
- Bodankin, M., & Tziner, A. (2009). Constructive Deviance, Destructive Deviance and Personality: How Do They Interrelate? *Economic Inferences XI*: 26: 549-564. <http://hdl.handle.net/10419/168681>
- Deshpande, S.P., George, E., Joseph, J. (2000). Ethical climate and managerial success in Russian organizations. *Journal of Bus Ethic*. 23, 211-17. <https://link.springer.com/article/10.1023/A:1005943017693>
- Dubrin, A. J. (1985) "Contemporary Applied Management" 2nd ed. (Plano, Texas: Business Publications. <https://journals.sagepub.com/doi/abs/10.1177/002188638802400409>
- Ebrahimi, S.A., & Meshbaki, A. (2014). Investigating the effect of perception of organizational policies and organizational support on the occurrence of deviant behaviors. *Quarterly Journal of Management of Government Organizations*, 1 (2), 7-22. <https://dorl.net/dor/20.1001.1.2322522.1392.1.0.14.8> [In Persian]

- Elci, M., & Alpkın, L. (2009). The impact of perceived organizational ethical climate on work satisfaction. *Journal of Business Ethics*, 84, 297-311. <https://www.jstor.org/stable/40294745>
- Ghadiri, M., Bashldeh, K., Hashemi Sheikh Shabani, S.I., & Mishkalani, F. (2013). The Relationship between Ethical Atmosphere and Job Satisfaction, Organizational Commitment and Intention to Leave a Job in the Employees of a State-Owned Company. *Journal of Ethics in Science and Technology*, 8 (2), 60-74. <http://ethicsjournal.ir/article-1-652-fa.html>
- Ghafourian, H., & Flamerzi, A. (2011). Investigating the Relationship between Conflict and Employee Job Performance. *Quarterly Journal of Industrial and Organizational Psychology*, 1 (2): 35-48. https://psy.garmsar.iau.ir/article_538806.html [In Persian].
- Ghasemzadeh, A., Maleki, Sh., Brooke Milan, Sh. (2014). The mediating role of organizational identity in the relationship between professional ethics and organizational citizenship behavior and deviant work behavior. *Iranian Journal of Medical Ethics and History*, 7 (4), 66-79. <http://ijme.tums.ac.ir/article-1-5418-fa.html> [In Persian].
- Glassman, J., Prosch, M., & Shao, B. B. M. (2015). To Monitor or not to Monitor: Effectiveness of a Cyberloafing Countermeasure. *Information & Management*, 52: 170-182. Doi:10.1016/j.im.2014.08.001
- Harter, J.K., Wilt, L.A., Colbert, A.E., Mount, M.K., & Barrick, M.R. (2019). Interactive effects of personality and perception of the work situation on workplace deviance. *Journal of Applied Psychology*, 89(4), 599-609. Doi:10.1037/0021-9010.89.4.599
- Henle, C. A., Kohut, G., & Booth, R. (2009). Designing Electronic Use Policies to Enhance Employee Perceptions of Fairness and to Reduce Cyberloafing: An Empirical Test of Justice Theory. *Computers in Human Behavior*, 25, 902-910. Doi:10.1016/j.chb.2009.03.005
- Huma, Z., Hussain, S., Thurasamy, R., & Malik, M. I. (2017). Determinants of Cyberloafing: A Comparative Study of a Public and Private Sector Organization. *Internet Research*, 27 (1): 97-117. Doi:10.1108/IntR-12-2014-0317
- Jandaghi, G., Alvani, S. M., Matin, H. Z., Kozekanan, S. F. (2015). Cyberloafing Management in Organizations. *Iranian Journal of Management Studies*, 8 (3), 335-349. Doi:10.22059/ijms.2015.52634
- Jia, H., Jia, R., & Karau, S. (2013). Cyberloafing and Personality: The Impact of the Big Five Traits and Workplace Situational Factors. *Journal of Leadership & Organizational Studies*, 20 (3), 358-365. Doi:10.1177/1548051813488208
- Kaplan, M., Ogot, A. (2012). The Relationship between Perceived Organizational Justice and Cyberloafing: The Case of Hospital Employees. *İşletme Fakültesi Dergisi*, 13 (1): 1-13. Doi:10.5901/mjss.2013.v4n10p226
- Kaviani, S., & Poorashraf, Y. (2016). Study of the effect of organizational conflict on sabotage behaviors mediated by burnout among nurses in hospitals in Ilam. Fourth International Conference on Applied Research in Management and Accounting, Tehran, Shahid Beheshti University. <https://civilica.com/doc/567898/> [In Persian]
- Keklik, B., Kılıç, R., Yıldız, H., & Yıldız, B. (2015). An Investigation of the Effect of Cyberloafing Behaviors on Organizational Learning Capacity. *Business and Economics Research Journal*, 6 (3), 129-144. [http://www.berjournal.com/wp-content/plugins/downloads-manager/upload/BERJ%206\(3\)15%20Article%208%20pp.129-144.pdf](http://www.berjournal.com/wp-content/plugins/downloads-manager/upload/BERJ%206(3)15%20Article%208%20pp.129-144.pdf)
- Kish-Gephart, J. J., Harrison, D. A., & Treviño, L. K. (2010). Bad apples, bad cases, and bad barrels: Meta-analytic evidence about sources of unethical decisions at work. *Journal of Applied Psychology*, 95(1), 1-31. Doi:10.1037/a0017103
- Lara, P. Z., Tacoronte, D. V., & Ding, J. M. T. (2006). Do Current Anti-Cyberloafing Disciplinary Practices Have a Replica in Research Findings? A Study of the Effects of Coercive Strategies on Workplace Internet Misuse. *Internet Research*, 16 (4), 450-467. Doi:10.1108/10662240610690052
- Lewis, P.S., Goodman, S., Fandt, P.M., & Michlitsch, J.F. (2014). Management: challenges for tomorrow's leaders. 4th ed. Florence (KY): Cengage Learning. <https://cir.nii.ac.jp/crid/1130282270137034624>
- Lieberman, B., Seidman, G., McKenna, K. Y., & Buffardi, L. E. (2011). Employee Job Attitudes and Organizational Characteristics as Predictors of Cyberloafing. *Computers in Human Behavior*, 27, 2192-2199. Doi:10.1016/j.chb.2011.06.015
- Lim, V. (2002). The IT Way of Loafing on the Job: Cyberloafing, neutralizing and Organizational Justice. *Journal of Organizational Behavior*, 23(5), 67-78. Doi:10.1002/job.161
- Lim, V. K. G., & Teo, T. S. H. (2005). Prevalence, perceived seriousness, justification and regulation of cyberloafing in Singapore: An exploratory study. *Information & Management*, 42(8), 1081-1093. Doi:10.1016/j.im.2004.12.002
- Lim, V. K. G. (2005). The Moderating Effect on Neutralization Technique on Organizational Justice and Cyberloafing. PACIS 2005 Proceedings, 207-219. http://aisel.aisnet.org/pacis2005/18?utm_source=aisel.aisnet.org%2Fpacis2005%2F18&utm_medium=PDF&utm_campaign=PDFCoverPages
- Lim, V. K. G., Chen, D. J. Q. (2012). Cyberloafing at the Workplace: Gain or Drain on Work. *Behavior & Information Technology*, 31 (4), 343-353. Doi:10.1080/01449290903353054
- Nair, N., Bhatnagar, D. (2020). Understanding Workplace Deviant Behavior in Nonprofit Organizations toward an Integrative Conceptual Framework. *Nonprofit Management & Leadership*, 21(3), 289-309. Doi:10.1002/nml.20026

- OcDwyer, B., Madden, G. (2006). Ethical Codes of Conduct in Irish Companies: A Survey of Code Content and Enforcement Procedures. *Journal of Business Ethics*, 63(3), 217-39. Doi:10.1007/s10551-005-3967-x
- Okpara, J.O. & Wynn, P. (2008), "The impact of ethical climate on job satisfaction, and commitment in Nigeria: Implications for management development", *Journal of Management Development*, 27(9), 935-950. Doi:10.1108/02621710810901282
- Peterson, D. K. (2002). Deviant workplace behavior and the organizations ethical climate. *Journal of Business Psychology*, 17(1), 47-61. <https://link.springer.com/article/10.1023/A:1016296116093>
- Rahimi, I., & Abbasi Rostami, N. (2015). Investigating the Relationship between Organizational Justice and Deviant Behavior of Employees. *Evaluation Knowledge Quarterly*, 8 (29), 105-120. <https://www.magiran.com/magazine/5829> [In Persian]
- Rahimnia, F., & Nikkhal Farkhani, Z. (2013). Study of the effect of organizational ethics on organizational performance and the tendency to leave the service. *Journal of Tomorrow Management*, 12 (37), 5-22. <http://www.modiriyatfarda.ir/fa/Article/24475> [In Persian]
- Restubog, S. L. D., Garcia, P. R. J. M., Toledano, L. S., Amarnani, R. K., Tolentino, L. R., & Tang, R. L. (2011). Yielding to (cyber)-temptation: Exploring the Buffering Role of Self -Control in the Relationship Between Organizational Justice and Cyberloafing Behavior in The Workplace. *Journal of Research in Personality*, 45, 247-251. <https://search.trdizin.gov.tr/tr/yayin/detay/432959/organizational-justice-ve-cyberloafing-ortaminda-organizasyon-adasindaki-iliski-tekstil-calisanlari-uzerine-bircalisma>
- Robbins, Stephen, P. (2000). *Organizational Behavior, Concepts, Theories and Applications*. Translated by Ali Parsaiyan and Seyed Mohammad Aarabi, 2016, Tehran: Cultural Research Office. [In Persian]
- Robert, K., & Kinicki, A. (2010). *Organizational Behavior*. New York: MC Hill.
- Schwepker, C., & Good, D. (2004). Sales Management Practices: The Impact of Ethics on Customer Orientation, Employment, and Performance. *Marketing Management Journal*, 14(2), 134-147.
- Sheikh, A., Atashgah, M. S., Adibzadegan, M. (2015). The Antecedents of Cyberloafing: A Case Study in an Iranian Copper Industry. *Computers in Human Behavior*, 51: 172-179. Doi:10.1016/j.chb.2015.04.042
- Soh, P. C. H., Koay, K. Y., & Chew, K. W. (2017). Conceptual View of Cyberloafing and Non-Work Domain, SHS Web of Conferences, 33, 1-7. Doi:10.1051/shsconf/20173300029
- Turani, S., Ahmadi, B., & Karami, A. (2014). Correlation between nurses' conflict and emotional intelligence of emergency department nurses in educational and medical centers of Iran University of Medical Sciences. *Health Promotion Management Quarterly*, 3 (3), 37-46. <http://jhpm.ir/article-1-324-fa.html> [In Persian]
- Ugrin, J. C., & Pearson, J. M. (2013). The Effects of Sanctions and Stigmas on Cyberloafing. *Computers in Human Behavior*, 29, 812-820. Doi:10.1016/j.chb.2012.11.005
- Victor, B., & Cullen, J. B. (1988). The organizational bases of ethical work climates. *Administrative science quarterly*, 33, 101-125. <https://www.jstor.org/stable/2392857>
- Wayne, J. H., Musisca, N., & Fleeson, W. (2010). Considering the role of personality in the work-family experience: Relationships of the big five to work-family conflict and facilitation. *Journal of Vocational Behavior*, 64(1), 108-130. Doi:10.1016/S0001-8791(03)00035-6
- Wolfe, S. E., & Piquero, A. R. (2011). Organizational Justice and Police Misconduct. *Criminal Justice and Behavior*, 38 (4), 332-353. Doi:10.1177/0093854810397739
- Yıldız, H., Yıldız, B., & Ateş, H. (2015). Is There a Role of Organizational Justice Perceptions on Cyberslacking Activities?. *Bilgi Ekonomisi ve Yönetimi Dergisi*, 10 (2), 55-66. https://www.researchgate.net/publication/284189508_Sanal_Kaytarma_Davranislarinin_Sergilenmesinde_Orgutsel_Adalet_Algisinin_Rolu_Var_midir
- Yılmaz, F. G. K., Yılmaz, R., Öztürk, H. T., Sezer, B., & Karademir, T. (2015). Cyberloafing as a Barrier to the Successful Integration of Information and Communication Technologies into Teaching and Learning Environments. *Computers in Human Behavior*, 45, 290-298. Doi:10.1016/j.chb.2014.12.023