

ORIGINAL RESEARCH PAPER

Perceptions of environmental sustainability amongst mineworkers

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ABSTRACT: Environmental sustainability needs to use resources efficiently and effectively from macro to micro level with a systematic approach. The dualistic relationship between ecosystem and human beings require considering ecological and social systems as well as economic factors known as the three-legged approach. Individuals and their perceptions are also important in this approach because of the need of environmental awareness and behaviors. From this point of view, this study assesses the perceptions of local mine workers in the Göksu Valley about the environmental sustainability to understand the relationship between environmental, personal and organizational factors. Extroversion, conscientiousness, and agreeableness as the sub-dimensions of the personality have positive correlations with environmental sustainability. Also, working conditions and expert power of the leader have a significant relationship with environmental sustainability within the mine worker sample which has a high-level environmental sustainability mean. The perceptions of local workers or residents are important to gain specific information about areas which have a special ecosystem for agriculture and animals.

KEYWORDS: *Environmental sustainability; Göksu Valley; Mediterranean; Organizational factors; Personality.*

INTRODUCTION

Gathering the terms of environmental and sustainability arise not only from increasing scarce resources but also from necessity. Sustainability has become a vital issue due to the chained effect of environmental problems which include eutrophication, global warming, mine-water pollution, air pollution, agricultural pollution, acid precipitation, and deforestation. International relations, policies and standards force the interest groups to consider the global environmental issues on account of irreversible consequences. The worries about the future of nature and people make sustainability a current issue for the environment. The US Federal Trade Commission (FTC) announced the “Green Guides” to help marketers avoid making deceptive claims which include 5 sections. The first section of the guide is about the sustainability, but the term is not known very well in 2010. After the effort of defining, the three-legged approach is supported

with the compound of environment, economy, and society. This approach reflects the relationship between human society and nature (Robinson, 2004). Increasing agricultural or economic needs emphasizes mutual ties between human and nature. From this point of view, environmental sustainability can be defined as “meeting human needs without compromising the health of ecosystems”. This perspective is about the limits of the human activities in nature. Additionally, Morelli (2011) defined the environmental sustainability as “meeting the resource and services needs of current and future generations without compromising the health of the ecosystems that provide them” (Morelli and Lockwood, 2011). According to the Foy (1990) sustainability also need the economic activities to minimize the social costs of meeting standards for protecting environmental assets. The social dimension of the sustainability is about providing positive condition and its process to achieve the condition within communities (Foy, 1990). Thus, the social perspective includes the equity of access to services and other sources as well as political advocacy (Morelli and Lockwood, 2011).

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Because there is a strong need to ecological balance for the sustainability and future. Social, economic systems should be developed for a more sustainable future not only by managers, politicians but also by the society and human. The dualistic relationship between ecosystem and human beings needs more agreement to protect the balance of nature or provide the clean air, water and lands continuously (Morelli, 2011). Environmental sustainability is the problem not only for businesses and governments but also for households and individuals. For this reason, it requires a systematic viewpoint which includes the causes and consequences of the term. In literature, it is seen that environmental sustainability needs for measurement to act people carefully about the environment and provide the standards for equality. Also, some important environmental projects are made to integrate the values and encourage changes in behaviors (Michalos *et al.*, 2009). Therefore, it can be said that the attitudes, perceptions, and behaviors of the individuals are important for the environmental awareness and sustainability. For that matter, environmental attitudes inventory is developed to analyze the psychological tendency about the environment (Milfont and Duckitt, 2010). According to the Gifford and Sussman (2012), environmental attitudes are important because they often determine behaviors that either increases or decreases environmental quality (Gifford and Sussman, 2012). Similarly, Daramola and Odunsi (2017) emphasize the importance of the attitudes and perceptions in their study. Further, environmental workplace behaviors are among the interesting titles to understand the environmental sustainability from an organizational behavior and human resource perspective (Ciocirlan, 2017). Because environmental behavioral intentions in the workplace are seen as antecedents of environmental behaviors (Greaves *et al.*, 2013). The attitudes of the workers can be affected several factors, both personal and organizational. Consequently, personality and demographic factors are used as personal factors while the quality of work life and sources of leader power is used as organizational factors. Because according to the Gong *et al.* (2016) there are some significant relationships between environment and psychological factors. However, the correlations between environment and human health are also considered as an important research area in the literature (Dzhambov *et al.*, 2017; Alcock *et al.*, 2017). It is wondered both personal and organizational factors, whether have a relationship between environmental sustainability or not in the current study. Personality is used to understand

individual differences and various parts of a person. Thus, American Psychological Association (APA, 2017) defines the personality as the individual differences in characteristic patterns of thinking, feeling and behaving. Social values, relationships, memories and other factors make individual differences and shape the personality with different patterns (APA, 2017). Costa and Widiger (1994) emphasize that the Five-Factor Model (FFM) of personality is the most useful and comprehensive taxonomy for describing personality (Costa *et al.*, 1994). Gosling *et al.* (2003) suggest a very brief measure of the FFM or Big-Five personality model with 10 items (Gosling *et al.*, 2003). Otherwise, organizational structure, management style, and other workplace factors can affect the attitudes or perceptions of employees. Work conditions, facilities and the style or power of manager or leader may be consulted to understand this effect or the relationships between individuals and organizational factors. Some researchers show that quality of work life can influence the organization and individual perceptions of the workers (Cummings and Molloy, 1977; Fields and Thacker, 1992) From this point of view, the quality of work life is used with the work environment, working conditions and facilities dimensions. On the other hand, sources of leader power, which include legitimate, expert and referent power, are used other organizational factor to understand the relationship between environmental sustainability and organizational perceptions. In the next title, some information will be given about the research area and its economic, agricultural and ecologic structure.

Agricultural and mining site of Göksu Valley

The Göksu Valley Basin is one of the rare regions of the Mediterranean shore with a special microclimate which provides special flora and fauna exist. The Göksu Delta is located on the edge of the Central Taurus, at 36 degrees 20' North, 33 degrees 59' east coordinates. It is a coastal plain with a surface area of about 150 km² formed by the alluviums carried by the Göksu River, which is poured into the Mediterranean Sea about 80 km west of Mersin city center. The Göksu River, which is called Cleadnos in ancient times, is the most important of the rivers that flow to the Mediterranean (CSB, 2017). Since the harbor area, the region has not lost its importance since ancient times due to the commercial potential and facility of sea transportation. The economic structure of the area is based on agriculture and livestock, and also fresh fruit and vegetable cultivation has an important potential. Grains, peanuts, sesame, vegetables, strawberries, pods, citrus fruits and rice are cultivated in the regions

as famous vegetables. Fruit farming, vegetable, and cereal agriculture are widely farmed on the central coast, while cereals, apples, cherries, pears, peaches, vines, and chickpeas are cultivated on the plateau side of the area. Therefore, it can be said that the livelihoods of the villagers are field crops, garden products, and livestock respectively. With the land of artificial soil, Göksu Delta and agricultural lands at different altitudes enable the cultivation of many agricultural products demanded by the foreign markets such as bay leaf, strawberry, tomato and lemon (Dölek, 2017). Additionally, it has been determined and declared as a Special Environmental Protection Region by the decision of the Council of Ministers. The 4350-hectare area, which includes Akgöl and Paradeniz lagoons in Delta, has been declared Wildlife Conservation Area by the Ministry of Forestry, National Parks and Hunting-Wildlife General Directorate (Gürbüz, 2000). Otherwise, the area includes one barite, one cement, one iron and two dolomite mineral deposits (MTA, 2017). This study has been carried out in Göksu Valley Basin of Turkey in 2017. Fig. 1 shows the study area which includes one area illustration and one as a coordinate map.

The importance of the area arises from not only the location of the lagoons but also its biological diversity seen in the maps. As a consequence, the studies which are about this area will help to provide awareness to the region as well as to protect rare species and unique natural properties. From this point forth, the main objective of the study is to determine the environmental sustainability perceptions of the local workers from a different viewpoint.

MATERIALS AND METHODS

The problem of the study and its importance

The main purpose of the study is to determine the level of perceived environmental sustainability of the

mine workers in the Göksu Valley. The second purpose is to explore the relationship between perceived environmental sustainability and personal traits. Lastly, the relationship between environmental perception and organizational factors are investigated. Thus, the relationships between environmental, personal and organizational factors are wanted to determine the scope of the sample. The research model developed for this purpose can show as Fig. 2.

As seen in the model, there are three main variables in the research as environmental sustainability, personal and organizational factors. Also, personality which includes extroversion, conscientiousness, agreeableness, openness, emotional stability and demographic factors are the personal variables of the study. Additionally, the quality of work life has three sub-dimensions as work environment, working conditions and facilities, and the sources of leader power include legitimate, expert and referent power. Quality of work life and sources of leader power are the organizational factors of the study.

Environmental attitudes of the local workers and residents are important for the regional ecosystem management and sustainability. Thus, environmental attitudes, emotions, and behaviors of the mine workers can give information about the local characteristics of the land which has a special ecosystem for the agriculture and extinct animals. From this point of view, here the problem of the current study is defined as identifying the relationship perceived environmental sustainability, personal and organizational factors of the mine workers:

- What is the level of the perceived environmental sustainability of the workers?
- Are there any relationships between perceived environmental sustainability and personality?



Fig. 1: A) Illustration of the study area

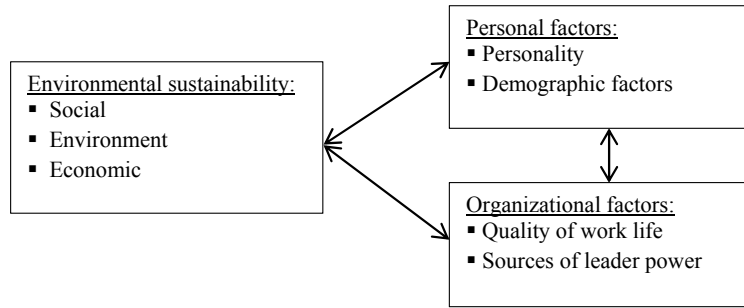


Fig. 2: The research model of the current study

- Are there any relationships between perceived environmental sustainability and organizational factors?
- Are there any differences at the level of environmental sustainability based on the demographic factors such as gender, marital status, and education?

Considering these questions, the following four hypotheses have been developed within the sample:

Hypothesis 1: There is a statistically significant relationship between perceived environmental sustainability and personality.

Hypothesis 2: There are significant differences at the level of perceived environmental sustainability due to the demographic factors.

Hypothesis 3: There is a statistically significant relationship between perceived environmental sustainability and quality of work life.

Hypothesis 4: There is a statistically significant relationship between perceived environmental sustainability and sources of leader power.

Scale and measurement

For the measurement of the perceived environmental sustainability and its three sub-dimensions, 21 items are used which is developed by Michalos *et al.* (2009) and used by Ince (2014). The scale of personality known as Ten Item Personality Measure (TIPI) is developed Gosling *et al.* (2003) and used several studies such as Rammstedt & John (2007) and Ehrhart *et al.* (2009). The index of the quality of work life is developed by the University of Sydney (Considine and Callus, 2002) and used by Çiçek (2005). Finally, the measurement of the sources of the leader power known as The Interpersonal Power Inventory-IPI is developed by Raven *et al.* (1998) and used by Gündüz (2015). As a consequence of this, the survey used for the research includes 58 items for 4 variables and 5 demographic questions in the light of the research model. In order to determine the level of the environmental sustainability and its

sub-dimensions, descriptive statistics are used, while correlation analysis is used for the relationships. Also, group test analyses such as t-test and ANOVA are used to explore the differences of group levels of environmental sustainability due to the demographic factors.

Study sample

The Göksu Valley Basin has 65.754 hectares for the agriculture and 174.884 hectares of forestland as well as five big mining sites which include iron, dolomite, and barite. The different mining companies operate in the area of the mine and metal extraction (CSB, 2017). One of the biggest firms is accepted to participate the survey. So, complete inventory counts are used for the sampling and 100 available forms are obtained at the end of the conducting the survey. The demographic factors of the 100 surveyed mining workers are shown Table 1.

The education level of the participants is mostly the higher school (46%) and other levels take part. As seen in Table 1, participants are male predominantly (82%), while the age range shows similarity.

RESULTS AND DISCUSSION

Firstly, the Cronbach alpha level of the environmental sustainability is 0.898 for 21 items,

Table 1: The frequencies and percentages of the participants

Variables		f	%
Gender	Female	18	18
	Male	82	82
Age	18-25	26	26
	26-33	27	27
	34-41	29	29
	42-49	13	13
	50 +	5	5
Marital status	Married	65	65
	Single	29	29
	Other	6	6
Total (N):		100	100

while personality is 0.757 for 10 items, quality of work life is 0.877 for 13 items and sources of leader power are 0.818 of 14 items. The Cronbach coefficient alpha levels of the items are above 0.7 as suggested (Peterson, 1994). Secondly, the mean and standard deviation of variables and their sub-dimensions are analyzed and shown in Table 2.

As shown in Table 2, the mean of the environmental sustainability is higher than 4 levels, which means “Strongly agree” level in 5-Likert scale. While the other variables as the quality of work and source of leader power are between 3 and 4 level. Additionally, the relationships that exist between environmental sustainability and personality is shown in Table 3.

As shown Table 3, there are significant relationships between environmental sustainability and sub-dimensions of the personality as extroversion

(r: 0.203; p: 0.043), conscientiousness (r: 0.355; p: 0.000), and agreeableness (r: 0.331; p: 0.001), while openness and emotional stability have no significant correlations. According to results from the analysis of correlations, it can be said that Hypothesis 1 based on the relationships between environmental sustainability and personality is accepted within 3 sub-dimensions of the personality. On the other hand, environmental sustainability also positively correlates with quality of work life as shown Table 4.

Quality of work life has three sub-dimensions in this study and only the sub-dimension of working conditions has a positive correlation with environmental sustainability. Other sub-dimensions as work environment and facilities have no any significant relationships. Thus, hypothesis 3 based on the relationships between environmental sustainability and quality of work life are accepted due to the correlation between working conditions and environmental sustainability (r: 0.222; p: 0.026). Last correlation analysis belongs to the variable of sources of leader power and it is seen in Table 5.

The expert and referent power as the sub-dimensions of the sources of the leader power have positive correlations with environmental sustainability, while the sub-dimension of legitimate power has no significant relationship. Thus, hypothesis 4 is also accepted based on the expert power (r:0.294; p:0.045) and referent power (r:0.296; p:0.043). Also, there are significant and positive correlations between personality, quality of work life and sources of leader power.

The openness as a part of the personality has negative significant relationships between legitimate power (p:0.019) and referent power (p:0.019) at the 0.05 level. However, the sub-dimensions of quality of work and sources of leader power have positive correlations. After the correlation analyses, t-test and ANOVA analyses are used for the group differences based on the demographic factors.

Table 2: Descriptive analyses of variables

Variables	Mean	Std. Deviation
Perceived environmental sustainability		
▪ Social sustainability	4.081	0.526
▪ Environmental sustainability	4.015	0.648
▪ Economic sustainability	4.106	0.660
Personality		
▪ Extroversion	3.885	0.797
▪ Conscientiousness	4.025	0.833
▪ Agreeableness	4.010	0.841
▪ Openness	3.190	0.585
▪ Emotional stability	3.060	0.786
Quality of work life		
▪ Work environment	3.499	0.761
▪ Working conditions	3.397	0.859
▪ Facilities	3.447	0.905
Sources of leader power		
▪ Legitimate	3.319	0.604
▪ Expert	3.617	0.689
▪ Referent	3.387	0.677

Table 3: Correlation analyses of environmental sustainability and personality

Variables	1	2	3	4	5	6	7	8	9
1. Social sustainability	1								
2. Environmental sustainability	0.565**	1							
3. Economic sustainability	0.565**	0.748**	1						
4. Total environmental sustainability	0.792**	0.901**	0.903**	1					
5. Extroversion	0.185	0.165	0.182	0.203*	1				
6. Conscientiousness	0.207*	0.352**	0.350**	0.355**	0.255*	1			
7. Agreeableness	0.202*	0.322**	0.322**	0.331**	0.194	0.587**	1		
8. Openness	0.095	-0.101	-0.071	0.039	-0.001	0.146	0.376**	1	
9. Emotional stability	0.013	-0.032	0.082	0.025	0.124	0.129	0.144	0.019	1

*. Correlation is significant at the 0.05 level; **. Correlation is significant at the 0.01 level; N:100

Table 4: Correlation analyses of environmental sustainability and quality of work life

Variables	1	2	3	4	5	6	7
1. Social sustainability	1						
2. Environmental sustainability	0.565**	1					
3. Economic sustainability	0.565**	0.748**	1				
4. Total environmental sustainability	0.792**	0.901**	0.903**	1			
5. Work environment	0.060	0.148	0.106	0.124	1		
6. Working conditions	0.139	0.223*	0.208*	0.222*	0.372**	1	
7. Facilities	0.148	0.059	0.026	0.083	0.545**	0.556**	1

*. Correlation is significant at the 0.05 level; **. Correlation is significant at the 0.01 level; N:100

Table 5: Correlation analyses of environmental sustainability and sources of leader power

Variables	1	2	3	4	5	6	7
1. Social sustainability	1						
2. Environmental sustainability	0.565**	1					
3. Economic sustainability	0.565**	0.748**	1				
4. Total environmental sustainability	0.792**	0.901**	0.903**	1			
5. Legitimate power	0.215	0.272	0.194	0.256	1		
6. Expert power	0.199	0.328*	0.294*	0.316*	0.384**	1	
7. Referent power	0.106	0.277	0.296*	0.269	0.421**	0.614**	1

*. Correlation is significant at the 0.05 level; **. Correlation is significant at the 0.01 level; N:100

Table 6: Correlation analyses of personality, quality of work life and sources of leader power

Variables	1	2	3	4	5	6	7
1. Openness	1						
2. Work environment	-0.014	1					
3. Working conditions	-0.074	0.372**	1				
4. Facilities	0.054	0.545**	0.556**	1			
5. Legitimate power	-0.341*	0.228	0.294*	0.247	1		
6. Expert power	-0.104	0.185	0.053	0.152	0.384**	1	
7. Referent power	-0.333*	0.399**	0.170	0.270	0.421**	0.614**	1

*. Correlation is significant at the 0.05 level; **. Correlation is significant at the 0.01 level; N:100

Table 7: T-test results of environmental sustainability

Independent groups	T Test	t	df	p
Environmental sustainability	Education	0.307	89	0.006

F: 8.079

The results of the test of homogeneity of variance for gender show that the sample doesn't prove the homogeneity condition because of the majority of the male. Another demographic factor is marital status and it also has the majority of the married participants, while age factor has distributed and close values. The final demographic factor is education and the levels of the environmental sustainability have differences based on this factor.

The level of high school is 4.101 for the environmental sustainability, while the level of the university is 4.06. This small difference is statistically significant for this sample according to the results of group analysis. Therefore, the hypothesis 2 based on the group differences for the environmental sustainability is accepted.

CONCLUSION

Environment or its sustainability is one of the important issues of the development as well as social and economic sustainability. For this reason, the subjects of environment and sustainability become widespread for both professionals and researchers. In this study, environmental sustainability is considered with personal and organizational factors by applying the perceptions of the mineworkers. Because, it is wondered both personal and organizational factors, whether have a relationship between environmental sustainability or not in this study. Firstly, environmental sustainability levels of the workers are determined, then the correlations between personality, demographic factors, quality of work life and sources of leader power

are analyzed as personal and organizational factors.

The means of the variables show that the level agreement of the environmental sustainability is between 4 and 5 on a five-point scale. It means that participants strongly agree with the items in socially, economically and environmentally. The residents and local workers have more information about the area, and they can easily notice the environmental changes in there. Both economic and social perspectives, the mine workers have environmental awareness and they begin to grow apprehensive about the sustainability of the natural environment in the Göksu Valley Basin. Environmental sustainability, personality, quality of work and sources of leader power are the variables of the study and hypotheses are about the relationships between these variables. According to the results of correlation analyses, there are significant relationships between variables within the sub-dimensions. All sub-dimensions have not significant correlations and the levels of the correlations are not too high, but these relationships show the connection of environmental sustainability and other variables. These correlations between environmental sustainability and other personal and organizational factors can be summarized as follows:

- Personality: Extroversion ($r: 0.203^*$), conscientiousness ($r: 0.355^{**}$) and agreeableness ($r: 0.331^{**}$).
- Quality of work: Working conditions ($r: 0.222^*$).
- Sources of leader power: Expert power ($r: 0.316^*$)

Moreover, the group means of the environmental sustainability have significant differences on the basis of education as the demographic factor. The relationships between environment and other outer and inner factors take widely part in literature. But, there is no big or widely known definition of environmental issues of the area due to the sources of agricultural or underground in the Göksu Valley. Researchers tend to consider the relationships between agriculture, ecosystems, and environment. Or, they analyze the effects of the environment on the human health (Dzhambov *et al.*, 2017; Alcock *et al.*, 2017). Therefore, how agriculture influences the environment and which kind of changes in that impact agroecosystems are the main research problem of the studies (Altieri, 1989; Fuhrer and Booker, 2003). But the perceptions of the farmers, residents and other special interest groups are neglected. From this point of view, the environmental sustainability perception of the mine workers in Göksu Valley is chosen as the target sample of the study. However, the researches about the Göksu Valley should be expanded with the perceptions of the merchants and farmers in the future. Also, to study the impact

of this research, other organizational factors are also investigated such as commitment, citizenship, and future anxiety as well as psychological and sociological factors. Additionally, politicians and local authorities should consider the results of the environmental studies for the sustainability of the special areas like Göksu Valley Basin. Because this kind of lands is so important not only for agriculture but also for the sustainability of the extinct animals and next generations.

CONFLICT OF INTEREST

The author declares that there is no conflict of interests regarding the publication of this manuscript.

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ABBREVIATIONS

%	Percentage
+	Plus
APA	American Psychological Association
CSB	Çevre ve Şehircilik Bakanlığı
<i>df</i>	Degrees of freedom
<i>E</i>	East in the map
<i>f</i>	Frekans
<i>F</i>	F-value
<i>FFM</i>	Five-Factor Model
<i>Fig.</i>	Figure
<i>FTC</i>	Federal Trade Commission
<i>MTA</i>	Maden Tektik ve Arama Genel Müdürlüğü
<i>N</i>	Total sample size
<i>N</i>	North in the map
<i>p</i>	p-values
<i>r</i>	Correlation coefficient
<i>Std. Deviation</i>	Standard Deviation
<i>t</i>	t-values

REFERENCES

- Alcock, I.; White, M.; Cherrie, M.; Wheeler, B.; Taylor, J.; McInnes, R.; Otte Im Kampe E.; Vardoulakis, S.; Sarran, C.; Soyiri, I.; Fleming, L., (2017). Land cover and air pollution are associated with asthma hospitalisations: A cross-sectional study. *Environ. Int.*, 109: 29-41 (13 pages).
- Altieri, M.A., (1989). Agroecology: A new research and development paradigm for world agriculture. *Agriculture, Ecosyst. Environ.*, 27(1-4): 37-46 (10 pages).
- APA, (2017). *Personality: Understanding personality disorders*.

- American Psychological Association.
- Çiçek, D., (2005). Örgütlerde motivasyon ve iş yaşam kalitesi: bir kamu kuruluşundaki yönetici personelin motivasyon seviyelerinden tespit edilerek iş yaşam kalitesinin geliştirilmesi üzerine bir araştırma, Unpublished Postgraduate Thesis, Çukurova University Inst. of Social Sci., Adana.
- Ciocirlan, C.E., (2017). Environmental workplace behaviors: Definition matters. *Organiz. Environ.*, 30(1): 51-70 (20 pages).
- Considine, G.; Callus, R., (2002). The quality of work life of Australian employees-the development of an index, Working paper 73, University of Sydney: 1-19 (19 pages).
- Costa, J.R.; Paul, T.; Widiger, T.A., (1994). Personality disorders and the five-factor model of personality. *Am. Psychol. Association*, 28(4): 307-332 (26 pages).
- Cummings, T.G.; Molloy, E.S. (1977). Improving productivity and the quality of work life, Oxford, England Praeger.
- Dölek, A., (2017). The economic report of Mersin: 1-167 (167 pages).
- Dzhambov, A.; Tilov, B.; Markevych, I.; Dimitrova, D., (2017). Residential road traffic noise and general mental health in youth: the role of noise annoyance, neighborhood restorative quality, physical activity, and social cohesion as potential mediators. *Environ. Int.*, 109: 1-9 (9 pages).
- Ehrhart, M.G.; Ehrhart, K.H.; Roesch, S.C.; Chung-Herrera, B.G.; Nadler, K.; Bradshaw, K., (2009). Testing the latent factor structure and construct validity of the ten-item personality inventory. *Pers. Individual Differences*, 47(8): 900-905 (6 pages).
- Fields, M.W.; Thacker, J.W., (1992). Influence of quality of work life on company and union commitment. *Acad. Manage. J.*, 35(2): 439-450 (12 pages).
- Foy, G.E., (1990). Economic sustainability and the preservation of environmental assets. *J. Environ. Manage.*, 14(8): 771-778 (8 pages).
- Fuhrer, J.; Booker, F., (2003). Ecological issues related to ozone: agricultural issues. *Environ. Int.*, 29(2): 141-154 (14 pages).
- Gifford, R.; Sussman, R., (2012). Environmental attitudes, Clayton, S.D. (Editor), *The Oxford handbook of environmental and conservation psychology*. Oxford University Press.
- CSB, (2017). Çevre ve Şehircilik Bakanlığı, Göksu Valley.
- Daramola, O.; Odunsi, O., (2017). Determinants of students perceived manmade environmental hazards and risks in tertiary educational institutions. *Global J. Environ. Sci. Manage.*, 3(1):43-50 (8 pages).
- Gong, Y.; Palmer, S.; Gallacher, J.; Marsden, T.; Fone, D., (2016). A systematic review of the relationship between objective measurements of the urban environment and psychological distress. *Environ. Int.*, 96: 48-57 (9 pages).
- Gosling, S.D.; Rentfrow, P.J.; Swann, W.B. Jr., (2003). A very brief measure of the big five personality domains. *J. Res. Pers.*, 37(6): 504-528 (25 pages).
- Greaves, M.; Zibarras, Lara D.; Stride, C., (2013). Using the theory of planned behavior to explore environmental behavioral intentions in the workplace. *J. Environ. Psychol.*, 34: 109-120 (12 pages).
- Gündüz, Y., (2015). Etkileşimsel ve dönüşümsel liderlik tarzlarının izleyicilerinin örgütsel güç algisi üzerindeki etkisini incelemeye yönelik bir araştırma. Unpublished postgraduate thesis, Marmara University Institute of Social Sciences, İstanbul, Turkey.
- Gürbüz, O., (2000). Göksu deltası özel çevre koruma bölgesine coğrafi yaklaşım. *İstanbul Univ. Coğrafya Derg.*, 8: 129-156 (28 pages).
- İnce, F., (2014). The investigation of relations between students' environmental perceptions and environmental buying behaviours. *Int. J. Acad. Res.*, 6(6): 201-205 (5 pages).
- Michalos, A.C.; Creech H.; McDonald, D.; Kahlke, M.H., (2009). Measuring knowledge, attitudes, and behaviours towards sustainable development: Two exploratory studies, January, Press of Int. Inst. Sustainable Dev., Canada.
- Milfont, T.L.; Duckitt, J., (2010). The environmental attitudes inventory: A valid and reliable measure to assess the structure of environmental attitudes. *J. Environ. Mental psychol.*, 30(1): 80-94 (15 pages).
- Morelli, J., (2011). Environmental sustainability: A definition for environmental professionals, *J. Environ. Sustainability*, 1(1):1-9 (9 pages).
- Morelli, J.; Lockwood, K., (2011). Environmental sustainability and ehs professional responsibility. Seventh Environ. Manage. Leadership Symp. 2 May 2011, Rochester, NY.
- MTA, (2017). Mersin ili maden ve enerji kaynakları.
- Peterson, R.A., (1994). A meta-analysis of Cronbach's coefficient alpha. *J. Consum. Res.*, 21(2): 381-391 (11 pages).
- Rammstedt, B.; John, O.P., (2007). Measuring personality in one minute or less: A 10-item short version of the Big Five Inventory in English and German. *J. Res. Pers.*, 41(1): 203-212 (10 pages).
- Raven, B.H.; Schwarzwald, J.; Koslowsky, M., (1998). Conceptualizing and measuring a power/interaction model of interpersonal influence, *J. Appl. Soc. Psychol.*, 28: 307-332 (26 pages).
- Robinson, J., (2004). Squaring the circle? Some thoughts on the idea of sustainable development. *Ecol. Economy*, 48: 369-384 (16 pages).
- Robinson, J., (2004). Squaring the circle? Some thoughts on the idea of sustainable development. *Ecol. Economy*, 48: 369-384 (16 pages).

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