Journal of Business Quarterly   jbsq.org

Integrative Approach to Work Psychology and The Integration of Multi Criteria Decision Making Methods to Work Psychology

H.Tezcan UYSAL[*]

Abstract

The purpose of this study is analysing the work psychology through a holistic view, so determining the right choice to designate a strategic management move through multi criteria decision making method, by performing positive and negative work psychology analysis. In the study, 221 the positive and negative work psychologies perception oriented to employees were determined through survey method. The data were processed through correlation and regression methods and a new set of information was obtained for ELECTRE analysis, a multi criteria decision making method. Thus, the cycle of ELECTRE analysis was provided by using positive work psychology outputs as alternative, and negative psychology outputs as criteria. In the result of the analyses related to the work psychologies of employees, a reasonably significant relation was determined between the outputs of positive and negative work psychologies. However, this could not set forth which was the action plan to be implemented by managers. This problem was solved through ELECTRE analysis. In the result of the ELECTRE analysis performed, it was determined that, among the outputs of positive work psychology, "job satisfaction" was the most dominant output to enhance the work psychology.

Keywords: Work psychology; Positive work psychology; Negative work psychology; Integrative Approach to Work Psychology; Multi Criteria Decision Making; ELECTRE method.

Introduction

Employees develop behaviours and attitudes according to the organizational atmosphere they are in. Senses of the employees, who are involved in an intense interaction with the organization and the entire employees of the organization, are influential in the development of these behaviours and attitudes. These senses that are directly related to superior-subordinate and subordinate -subordinate relationships within the organization are affected by the objectives, aims and the policies of the organization as well. While the factors such as employees to trust each other in the organizational climate, motivator and positive behaviours of managers, reward system, sincerity among employees create positive senses at employees; stress, conflict, threatening, pressure and mobbing create negative senses. Employees have different attitudes that they developed against these senses psychologically. But different attitudes do not mean that they are independent of one another. Therefore, these attitudes were collected under the title of

---

[*] Lecturer, Zonguldak Vocational College, Bülent Ecevit University, Turkey.

positive and negative work psychology through the approach of integrative work psychology. With this approach, the work psychologies of employees can be revealed and the relation between positive and negative work psychologies can be examined in detail. In addition, with the integration procedure of multi-criteria decision making methods developed to the work psychology, it can be determined basing on which psychological factor a more effective attitudinal innovation could be made within the organization.

The purpose of this study is analysing the work psychology through a holistic view, and so determining the right choice to designate a strategic management move through multi criteria decision making method, by performing positive and negative work psychology analysis. The research is important with regards to its approach to work psychology and the new method it implemented on that. Besides, analysing the work psychology in an integrative structure differently from the publications examining that at conceptual framework, this study is considered to contribute to the literature of work psychology as a guide in concretisation of the results to be obtained from work psychology researches to be carried out in future.

2. Work Psychology in Organizations

Modern enterprises want their employees to be conscientious, willing to fulfil the roles given to them, proactive and settle down to quality (Bakker, Albrecht and Leiter, 2011: 5). Hence, the works in the field of work psychology came into prominence in our day; however, its significance and objective could not be understood rightly yet. The biggest reason for this is the lack of a common definition adopted by the world literature and the tendency of researchers, who carry out studies in this field, to split work psychology into sections when analysing it.

When the international literature is analysed, it is seen that British Psychological Society defined the work psychology generally. According to the said definition, work psychology is the application of psychological science to employees (Lewis and Zibarras, 2013: 3). Considering work psychology through a broader perspective, Tınar (1996) defined that as a discipline that examines the matters creating psychological problems in business life, searches its reasons, effects and solutions, aims at establishing a healthy and effective harmony among employees, and strives for the accumulation of knowledge in this particular.

Starting from this point of view, work psychology can be defined as, *"a discipline that examines and researches organizational attitudes that create positive and negative effects on employees and aims at optimization of organizational climate through the studies it carried out by approaching to organizational behaviour in an integrative way, and aims at establishing an appropriate work psychology for organizations to fulfil their objectives through positive management approach, by enabling the development of job performance"* (Uysal and Yavuz, 2015: 117).

When the literature is analysed, various studies were found intended for the work psychology. Among these studies; Hanin (1993) examined work psychology in sports, Aamodt (2000) the role of work psychology for policemen, Bucklin et al. (2000) objective comparison of organizational behaviour management and work psychology, Islam and Zyphur (2006) the theory and practice of work psychology, Mawhinney (2011) work psychology and job satisfaction in terms of organizational behaviour management, Kazi et al. (2013) the history of work psychology, Uysal (2014a) the effect of work psychology on organizational cynicism in the sense of employees' performance, and again in another work, Uysal (2014b) the effect of organizational climate on work psychology.

2.1. Positive Work Psychology

Work psychology is a psychological attitude produced by employees due to atmosphere they underwent in an organizational climate. These attitudes vary by the structure of organizational climate. And the structure of organizational climate is determined for employees by the relations among them and the management styles. Depending on these factors, employees develop positive or negative attitudes. Employees are loyal to organization, satisfied by their jobs and highly motivated in an optimal organization climate. So, organizational commitment, job satisfaction and motivation are considered as the positive outputs of the work psychology.

When the positive outputs of work psychology are analysed, the first output is the concept of organizational commitment that is used in the literature frequently. Cook and Wall (1980) defined organizational commitment as an emotional reaction given by employees to the characteristics of the organization, where they work. The perspective for this frequently researched concept varied by researchers. While researchers such as Becker, Staw, Salancik define organizational commitment by dealing with its behavioural aspect; some other researchers like Allen, Meyer, March and Simon, Mowday, Steers and Porter and Boulian put forward the behavioural aspect of organizational commitment concept (Yavuz, 2009: 55). When these two approaches are evaluated, the closest analysis to work psychology is the examination of organizational commitment attitudinally.

One of the most famous studies related to organizational commitment was carried out with the development of organizational commitment survey by Mowday, Steers and Porter in 1979; and the said survey was used prevalently in subsequent organizational commitment researches as well (Riveros and Tau Tsai, 2011: 329). Analysing the commitment with regards to organizational behaviour, Meyer et al. (2002) developed "Three Dimensional Commitment Scale" and described organizational commitment through these dimensions. This scale developed was used by researchers for providing important outputs of employees such as absenteeism, tardiness, job performance and citizenship behaviours (Jaros, 2007: 14).

Organizational commitment has 3 dimensions. These are emotional commitment, continuity commitment and normative commitment (Jaros, 2007: 7). Emotional commitment is the adoption of a strong faith, organizational objective and values along with the will of maintaining membership to organization (Fu, Bolander and Jones, 2009: 337). Continuity commitment is an obligation arising from the costs related to employee to leave the organization (Commeiras and Fournier, 2001: 239). And O'Driscoll and Randall (1999) defined continuity commitment as a commitment based on the thought of employees would bear the cost of leaving their jobs in case of doing so. And normative commitment is employees to settle down to organization and their loyalty to organization as a result of cultural socialization (Prabhakar and Ram, 2011: 56). And Karim and Noor (2006) defined normative commitment as people to feel obligation to organization based upon their values and norms.

The second positive output of work psychology is the job satisfaction. One of the prevailing definitions of work psychology in the literature belongs to Locke (1976). According to this definition, job satisfaction is a positive emotional situation that rises with people to compare their job experiences and evaluate their job oriented expectations. A similar approach was shown by Ahmad and Riaz (2011) as well. According to the perspectives of these two researchers, job satisfaction is one of the research areas where the structure of psychological connection of employees in organizations is examined. While job satisfaction reveals positive reactions of individuals to their jobs, it also acts as a positive emotional expression or a psychological control

and revision that reflect the emotion, attitude and reaction to job situation conventionally (Naktiyok and Küçük, 2003: 228). Besides its personal effects, job satisfaction has organizational effects as well. Dissatisfaction in work arising from poor organizational climate affects employees in the ways of reluctance in going to work, leave of employment and will to steer away from work, inability to cooperate, feeling of insufficiency, wrong decisions and inferiority in amount and quality of work (Kök, 2006: 297). In addition, due to job satisfaction is the reason or dominant factor for employees to leave their jobs; it has a special importance with regards to strategic management as well (Ucho, Mkavga and Onyishi, 2012: 379).

The third and last positive output of work psychology is motivation. The most important role of motivation is shaping behaviour and effecting work performance within organization (Mercanoğlu, 2012: 48). Pool and Pool (2007) defined motivation as revealing voluntary behaviours for accomplishing personal and organizational targets and a psychological process towards ensuring continuity of these behaviours; and Mawoli and Babandako (2011) defined it as a process that cannot be measured or observed directly, which affect behaviours. Values, attitudes and leadership behaviour of employees have a crucial role in increasing motivation (Chowdhury and Amin, 2001: 1). Employees motivated in the light of these factors are well attuned to their organizations and support the values of organization; so their job performances increase and absenteeism decrease. And even the most talented employees avoid from intense working in organizations without motivation (Clark, 2003: 23).

2.2. Negative Work Psychology

Every person starts a job in a neutral attitude. However, these persons cannot isolate themselves from the effects of organizational climate and their psychological attitudes are subject to fluctuations. As these fluctuations may be positive, they are usually in negative direction. Job stress occurs for employees particularly as a reaction to negative effects of organizational climate; burnout syndromes are experienced and intentions happen to quit job. These attitudes are the negative outputs of work psychology.

When negative outputs of work psychology are analysed, the first output is the job stress. Stress, a syndrome encountered frequently in modern day societies, is defined as any alteration or warning (Hosseini, Nourbakhsh and Sepasi, 2013: 301) in internal and external environment, which may ruin life balance of employees. And in a definition that can be used as base related to work psychology, stress was stated as the nonexclusive (common) reaction of organism against any sort of alterations (Barton, 2002: 517). As it can be seen in these definitions as well, the most distinctive characteristic of stress is it to be uncontrollable and unparseable from other negative outputs. Here the point to take into account is stress to be a part, but not stimulant of other negative outputs. However, stress is usually confused with the concept of stimulant. While stress lead to a deterioration in body balance due to stimulants exceeding the tolerance threshold, stimulants only induce any reaction in body (Turunç and Çelik, 2010: 186). Breaking the body balance, stress also affects the performance negatively (Örücü, Kılıç and Ergül, 2011: 8). Luthans (1992) defined the reasons of these stress resources that affect employees as organizational policies, structural properties of organization, physical conditions and organizational processes. The stress occurring in the result of these factors causes negative consequences such as absenteeism, exhaustion, lack of confidence and performance problem (Manning and Preston, 2003: 15).

The second negative output of work psychology is organizational burnout. Burnout syndrome took part in the literature for the first time in 1974 after being used by Herbert J.

Freudenberger (Dargah and Estalkhbijari, 2012). Freudenberger (1974) defines burnout as "the state of exhaustion in the internal resources of a person caused by failure, decay, loss of power and energy as a result of over loading or desires cannot be met". Pines & Aronson (1998) define burnout as a state of physical, emotional and mental exhaustion caused by long-term involvement in situations that are emotionally demanding (Enzmann et al, 1998). Today, the most common and widely adopted definition for the 'burnout' concept is the one made by Christiba Maslach, who developed Maslach Burnout Inventory (Maslach Burnout Inventory-MBI). According to Maslach (2003) burnout is a psychological syndrome that rises in long term as a reaction against stress increasing factors in workplace. There are three sub-dimensions of burnout concept which are emotional exhaustion, depersonalization and reduced personal accomplishment (Katyal, 2013). While Freudenberger dealt with only the emotional exhaustion dimension of burnout, Maslach and Jackson examined all three dimensions. These dimensions are Emotional Exhaustion, Depersonalization and Reduced Personal Accomplishment. Symptoms such as tiredness, lack of energy and feeling emotionally worn out are seen in emotional burnout dimension. Depersonalization refers to an impersonal and dehumanized perception of recipients, characterized by a callous, negative, and detached attitude (Salanova et al., 2005). According to Maslach (2003), Reduced Personal Accomplishment is defined as "a person to be apt to evaluate oneself negatively". An employee, who feels reduced personal accomplishment, feels inadequacy and lack of motivation.

The third and last negative output of work psychology is the intention of release. The most important factor that separates intention of release from other negative outputs is its irreversible structure and the direct financial harm that it creates to the detriment of the organization. When intention of release definitions in the literature are analysed, Rusbult et al. (1998) defined intention of release as disruptive and active reactions shown by employees when they are unsatisfied with working conditions, meanwhile Tett and Meyer defined that as individuals to search for job opportunities in other organizations deliberately (Samad and Mara, 2006: 1). Intention of release is frequently confused with cynicism, one of the new organization concepts. While intention of release is an attitude maintained by employees in the result of intense negative emotions they identified in their work psychologies, cynicism is rather an attitude formed by negative behavioural tendencies of employees against their organizations. Cynical persons are loyal to their organizations with different commitment types within the scope of cynicism concept, while individuals with negative work psychologies are in tendency to leave their organizations rather than being loyal. When considered from this point of view, intention of release can be defined as the preceding step of the leave of employment, which brings costs for organizations and causes them to lose time, as well as damages social relations among work groups causes demoralization of employees (Poyraz and Kama, 2008: 149). Factors of job satisfaction and organizational commitment are very important in the formation of such a process experienced by employees (Malik et al., 2011: 1904).

3. Multi Criteria Decision Making Methods

Decision making, when a great number of criteria/attitudes contradicting each other are on the carpet, is known as multi criteria decision making (Kaya, Çetin and Kuruüzüm, 2011: 81). These methods are quite efficient with regards to their usability in very different disciplines. The multi criteria decision making methods in the literature are Analytic Hierarchy Process (AHP), Delphi Method, Weighting Method, ELECTRE Method, Mathematical Programming Methods, Multi-Purpose Mathematical Methods, Artificial Intelligence Methods and Genetic Algorithms

(Elgün, 2011: 221). By using these methods, decision making mechanism can be kept under control in cases when multiple and generally contradicting criteria are in question and it can be reached to a decision easily and fastly as much as possible (Ertuğrul and Karakaşoğlu, 2010: 24).

Thanks to ELECTRE, one of the optimization-objective mathematical programming methods, decision makers can involve a great number of quantitative and qualitative criteria into decision making process, weight criteria in line with intended purpose and determine the optimum alternative by collecting their weights (Kuru and Akın, 2012: 137). For this reason, it was preferred the implementation of ELECTRE I method in the study. ELECTRE and other multi criteria decision making methods are used for different studies in the literature. For instance, Linares and Romero (2000) used AHP (analytic hierarchy process) method for the solution of electric planning problems in the study they performed in Spain. Lu, Wang and Mao (2010) evaluated safe software products in their study by using ELECTRE TRI method. And in the study they carried out, Janic and Reggiani (2002) used SAW (simple additive weighting), TOPSIS and AHP (analytic hierarchy process) methods about the selection of a new central airport in Europe. However, before this study, multi criteria decision making methods were not correlated with work psychology. Consequently, there is not another research on work psychology, which was performed based on ELECTRE or any other decision making method, as well as SPSS data.

3.1. ELECTRE Method

ELECTRE I conformity-nonconformity or upper-rating methods were referred as ELECTRE II, III, IV and ELECTRE TRI by differentiating with regards to preference structures they contained, whether they use weight data or not and the results (outputs) they revealed. These methods use basically the upper rating relation and for the elements of an A alternatives set; and they end up with the selection of an element (preference), classification of alternatives as "acceptable" and "unacceptable" etc. and the rating the alternatives (Bouyssou, 2001: 7). 8 mathematical steps are followed in the implementation of ELECTRE I method. These steps were given below respectively (Çelik and Ustasüleyman, 2014: 143);

Step 1: Formation of Decision Matrix (A)

Decision points that will be ranked according to their supremacies take part in the lines and the evaluation factors to be used in decision making take part in the columns of the decision matrix. A matrix is the beginning matrix formed by the decision maker. Decision matrix is showed as follows:

$$A_{ij} = \begin{bmatrix} a_{11} & a_{12} & ... & a_{1n} \\ a_{21} & a_{22} & ... & a_{2n} \\ . & & & . \\ . & & & . \\ . & & & . \\ a_{m1} & a_{m2} & ... & a_{mn} \end{bmatrix}$$

m gives the number of decision points and n gives the number of evaluation factor in A_{ij} matrix.

Step 2: Formation of Standard Decision Matrix (X)

Standard Decision Matrix is calculated by using the elements of A matrix and the formula below.

$$x_{ij} = \frac{a_{ij}}{\sqrt{\sum_{k=1}^{m} a_{kj}^2}}$$

The X matrix is obtained as follows in the result of the calculations:

$$X_{ij} = \begin{bmatrix} x_{11} & x_{12} & ... & x_{1n} \\ x_{21} & x_{22} & ... & x_{2n} \\ . & & & . \\ . & & & . \\ . & & & . \\ x_{m1} & x_{m2} & ... & x_{mn} \end{bmatrix}$$

Step 3: Formation of weighted Standard Decision Matrix (Y)

Weights of the evaluation factors may be different for decision maker. Y matrix is calculated for reflecting this weight differences to ELECTRE solution. Decision maker should firstly determine the weights of the evaluation factors (w_i) and the addition of these weights should be one ($\sum_{i=1}^{n} w_i = 1$).

Then the elements in each of the columns of X matrix are multiplied with the relevant w_i value and Y matrix is constituted. The Y matrix is shown below:

$$Y_{ij} = \begin{bmatrix} w_1 x_{11} & w_2 x_{12} & ... & w_n x_{1n} \\ w_1 x_{21} & w_2 x_{22} & ... & w_n x_{2n} \\ . & & & . \\ . & & & . \\ . & & & . \\ w_1 x_{m1} & w_2 x_{m2} & ... & w_n x_{mn} \end{bmatrix}$$

Step 4: Determination of Conformity (C_{kl}) and Nonconformity (D_{kl}) Sets

It is made use of Y matrix for conformity sets to be determined, the decision points are compared to one another with regards to evaluation factors and the sets are defined by means of the relation shown in the formula below and the formula is mainly depended on the comparison of the magnitudes of line elements comparing to each other:

$$C_{kl} = \{ j, y_{kj} \geq y_{lj} \}$$

A nonconformity set (D_{kl}) corresponds to each conformity set (C_{kl}) in ELECTRE method. The number of conformity sets is as much as the number nonconformity sets. Elements of nonconformity set consist of j values that do not belong to the relevant conformity set.

Step 5: Formation of Conformity (C) and Nonconformity Matrices (D)

It is benefited from conformity sets for the formation of conformity matrix (C). C matrix is *mxm* dimensional and it does not take value for $k = l$. The elements of C matrix are calculated by means of the relationship shown in the formula below.

$$c_{kl} = \sum_{j \in C_{kl}} w_j$$

And the elements of nonconformity matrix (D) are calculated by means of the formula below:

$$d_{kl} = \frac{\max_{j \in D_{kl}} \left| y_{kj} - y_{lj} \right|}{\max_{j} \left| y_{kj} - y_{lj} \right|}$$

D matrix is also *mxm* dimensional and it does not take value for $k = l$. The D matrix is shown below:

$$D = \begin{bmatrix} - & d_{12} & d_{13} & ... & d_{1m} \\ d_{21} & - & d_{23} & ... & d_{2m} \\ . & & & & . \\ . & & & & . \\ . & & & & . \\ d_{m1} & d_{m2} & d_{m3} & ... & - \end{bmatrix}$$

Step 6: Formation of Conformity Supremacy (F) and Nonconformity Supremacy (G) Matrices

Conformity supremacy matrix (F) is *mxm* dimensional and the elements of the matrix is obtained by the comparison of conformity threshold value ($\underline{c}$) with the elements of conformity matrix (c_{kl}). Conformity threshold value ($\underline{c}$) is obtained by means of the formula below:

$$\underline{c} = \frac{1}{m(m-1)} \sum_{k=1}^{m} \sum_{l=1}^{m} c_{kl}$$

m in the formula shows the number of decision points. More clearly, the $\underline{c}$ value is equal to the multiplying of $\dfrac{1}{m(m-1)}$ and the total of the elements that form the C matrix.

The elements of F matrix (f_{kl}), take the value of either 1 or 0 and there is no value on the diagonal of the matrix due to it showed the same decision points. If $c_{kl} \geq \underline{c} \Rightarrow f_{kl} = 1$, and if $c_{kl} < \underline{c} \Rightarrow f_{kl} = 0$.

Nonconformity supremacy matrix (G) is also *mxm* dimensional and it is constituted similarly to F matrix. The nonconformity threshold value ($\underline{d}$) is obtained by means of the formula below:

$$\underline{d} = \frac{1}{m(m-1)} \sum_{k=1}^{m} \sum_{l=1}^{m} d_{kl}$$

The element of the G matrix (g_{kl}) also take the values of either 1 or 0 values and there is no value on the diagonal of the matrix due to it showed the same decision points. If $d_{kl} \geq \underline{d} \Rightarrow g_{kl} = 1$, and if $d_{kl} < \underline{d} \Rightarrow g_{kl} = 0$.

Step 7: Formation of Total Dominance Matrix (E)

The elements of the total dominance matrix (E) are equal to mutual multiplying of (e_{kl}) f_{kl} and g_{kl} elements. Here, the E matrix is *mxm* dimensional depending upon the F and G matrices and again comprise of 1 or 0 values.

Step 8: Defining the Importance Order of the Decision Points

The lines and columns of the E matrix show the decision points. 0 and 1 values in the lines are analysed and absolute dominance is found and the importance order of the decision points is defined.

4. Implementation of the Method

Alternatives and criteria needed for the implementation of ELECTRE method were obtained from the data revealed in the result of SPSS analysis of the work psychology. In the result of a survey study on the employees of a public institution, the effects of positive work psychology to negative work psychology and the relation between them were determined through SPSS analysis (See Table 1).

Table 1: Correlation Table

POSITIVE WORK PSYCHOLOGY			Organizational Commitment	Job Satisfaction	Motivation
NEGATIVE WORK PSYCHOLOGY	Job Stress	Pearson Correlation	,-235	,-511	,-299
		Sig. (2-tailed)	,000	,000	,000
	Intention of Release	Pearson Correlation	-,224	-,208	-,245
		Sig. (2-tailed)	,001	,002	,000
	Organizational Burnout	Pearson Correlation	-,392	-,242	-,411
		Sig. (2-tailed)	,000	,000	,000

When Table 1 is analysed, it is seen that all the outputs of negative and positive work psychologies are interrelated significantly and the said relation is moderate in general, and the level of this relationship is not high enough to make a selection.

Table 2: Organizational Commitment and Negative Work Psychology Multiple RegressionAnalysis

Model	β	t	Sig.
(Constant)	29,236	13,178	,000
Job Stress	,-351	-3,963	,000
Intention to Release	,103	,763	,447
Organizational Burnout	-,292	-5,895	,000

In the result of the multiple regression analysis performed in Table 2, a significant relation was determined between job satisfaction and organizational burnout and organizational commitment at a level of p<0.05. A significant relation was not determined between intent to release and organizational commitment (p>0.05) and it could not be formulated in the model.

According to data in Table 2, the value, which organizational commitment may receive, can be formulated as the following;

"Organizational Commitment= 29,236 - (0,351 x Job Stress) - (0,292 x Organizational Burnout)"

Table 3: Job Satisfaction and Negative Work Psychology Multiple Regression Analysis

Model	β	t	Sig.
(Constant)	19,070	13,934	,000
Job Stress	-,493	-9,032	,000
Intent to Release	,074	,886	,377
Organizational Burnout	-,127	-4,142	,000

In the result of the multiple regression analysis performed in Table 3, a significant relation was determined between job stress and organizational burnout and job satisfaction at a level of p<0.05. A significant relation was not determined between intent to release and job satisfaction (p>0.05) and it could not be formulated in the model.

According to data in Table 3, the value, which job satisfaction may receive, can be formulated as the following;

"Job Satisfaction= 19,070 - (0,493 x Job Stress) - (0,127 x Organizational Burnout)"

Table 4: Motivation and Negative Work Psychology Multiple Regression Analysis

Model	β	t	Sig.
(Constant)	18,460	9,903	,000
Job Stress	-,385	-5,180	,000
Intent to Release	,099	,868	,387
Organizational Burnout	-,267	-6,415	,000

In the result of the multiple regression analysis performed in Table 4, a significant relation was determined between job stress and organizational burnout and motivation at a level of p<0.05. A significant relation was not determined between intent to release and motivation (p>0.05) and it could not be formulated in the model.

According to data in Table 4, the value, which motivation may receive, can be formulated as the following;

"Motivation= 18,460 - (0,385 x Job Stress) - (0,267 x Organizational Burnout)"

This transaction carried out after the data obtained from the research were analysed through SPSS is the start of the calculations by relaying the findings obtained in the result of these analyses to ELECTRE program. The first thing to be done is determining alternatives and criteria. Positive work psychology outputs (organizational commitment, job satisfaction, motivation) represent alternatives, while negative work psychology outputs (job stress, organizational burnout, intention to release) represent evaluation criteria. So, the positive work psychology output to reduce negative work psychology optimally at maximum level will be determined.

After the determination of alternatives and criteria, it was needed to determine factor weights. Correlation and regression values of negative work psychology were taken while determining the weights.

Table 5: Factor Weights

Factor No	Factor Name		Factor Weight
1	Job Stress (r)	w_1	0,223195
2	Intent to Release (r)	w_2	0,144596
3	Organizational Burnout (r)	w_3	0,223195
4	Job Stress (â)	w_4	0,262495
5	Organizational Burnout (â)	w_5	0,146519
6	Intent to Release (â)	w_6	0,000000

After the determination of factor weights, the beginning matrix, in a word the decision matrix (A), which is needed for the 1st step of ELECTRE method, was given in the table (See Table 6).

Table 6: Decision Matrix

Correlation (r)			Regression (â)		
Job Stress	Intent to Release	Organizational Burnout	Job Stress	Organizational Burnout	Intent to Release
0,2350	0,2240	0,3920	0,3510	0,2920	0,1030
0,5110	0,2080	0,2420	0,4930	0,1270	0,0740
0,2990	0,2450	0,4110	0,3850	0,2670	0,0990

$A=$

The standard decision matrix (X), which was formed with the recalculation of the elements of decision matrix in Table 6 through normalization formula was given in the table below (See Table 7).

$$x_{ij} = \frac{a_{ij}}{\sqrt{\sum_{k=1}^{m} a_{kj}^2}} \quad \text{For instance for } X_{11}; \quad X_{11} = \frac{0,2350}{\sqrt{0,2350^2 + 0,5110^2 + 0,2990^2}}$$

Table 7: Standard Decision Matrix

$$X= \begin{bmatrix} 4,255319 & 4,464286 & 2,551020 & 2,849003 & 3,424658 & 9,708738 \\ 1,956947 & 4,807692 & 4,132231 & 2,028398 & 7,874016 & 13,513514 \\ 3,344482 & 4,081633 & 2,433090 & 2,597403 & 3,745318 & 10,101010 \end{bmatrix}$$

Obtained with the distribution of the weights of determined 6 factors on standard decision matrix, the weighted standard decision matrix (Y) was given in the table below (See Table 8).

Considering the rule of $\sum\limits_{i=1}^{n} w_i = 1$, for $W_1 \times X_{11}$; $Y_{11} = 0{,}223195 \times 4{,}255319$

Table 8: Weighted Standard Decision Matrix

$$Y = \begin{bmatrix} 0{,}949767 & 0{,}645519 & 0{,}569376 & 0{,}747848 & 0{,}501776 & 0{,}000000 \\ 0{,}436781 & 0{,}695175 & 0{,}922294 & 0{,}532444 & 1{,}153690 & 0{,}000000 \\ 0{,}746472 & 0{,}590189 & 0{,}543054 & 0{,}681804 & 0{,}548759 & 0{,}000000 \end{bmatrix}$$

After calculating weighted standard decision matrix, the next step is the formation of conformity and nonconformity sets. In the A_p and A_q (1,2,....,m and $p \neq q$) conformity set, A_p alternative is preferred to A_q in paired comparison. In this case, A_q takes part in nonconformity set. Accordingly, the determined conformity and nonconformity sets were given in Table 9.

Table 9: Conformity and Nonconformity Sets

Conformity Sets	Nonconformity Sets
C (1,2) = {1,4}	D (1,2) = {2,3,5}
C (1,3) = {1,2,3,4}	D (1,3) = {5}
C (2,1) = {2,3,5}	D (2,1) = {1,4}
C (2,3) = {2,3,5}	D (2,3) = {1,4}
C (3,1) = {5}	D (3,1) = {1,2,3,4}
C (3,2) = {1,4}	D (3,2) = {2,3,5}

The step after the formation of conformity and nonconformity sets is the calculation of conformity matrix (C) and nonconformity matrix (D). The calculated conformity and nonconformity sets are below (See Table 10 and 11).

For instance, for C_{12}; with the implementation of $c_{kl} = \sum\limits_{j \in C_{kl}} w_j$ formula $C_{12} = (w_1 + w_4)$

Table 10: Conformity Matrix

$$C = \begin{bmatrix} — & 0{,}48569 & 0{,}85348 \\ 0{,}51431 & — & 0{,}51431 \\ 0{,}14652 & 0{,}48569 & — \end{bmatrix}$$

With the use of $d_{kl} = \dfrac{\max\limits_{j \in D_{kl}} \left| y_{kj} - y_{lj} \right|}{\max\limits_{j} \left| y_{kj} - y_{lj} \right|}$ formula, the example of D_{12} calculation is as follows;

$$D_{12} = \frac{\max\{0.049655;\ 0.352919;\ 0.651914\}}{\max\{0.512986;\ 0.049655;\ 0.352919;\ 0.215405;\ 0.651914\}}$$

Table 11: Nonconformity Matrix

$$D=\begin{bmatrix} — & 1 & 0{,}231108 \\ 0{,}78689 & — & 0{,}51194 \\ 1 & 1 & — \end{bmatrix}$$

The step after the calculation of conformity and nonconformity matrices is the calculation of conformity superiority and nonconformity superiority matrices. For this, conformity and nonconformity threshold values are needed. Those below are the formulas used in the calculation of these values:

$$\underline{c} = \frac{1}{m(m-1)}\sum_{k=1}^{m}\sum_{l=1}^{m}c_{kl} \quad C_{threshold}= \frac{1}{3(3-1)}(0.48569+0.85348+0.51431+0.51431+0.14652+0.48569)$$

$$\underline{d} = \frac{1}{m(m-1)}\sum_{k=1}^{m}\sum_{l=1}^{m}d_{kl} \quad D_{threshold}= \frac{1}{3(3-1)}(1 + 0.231107 + 0.786892 + 0.511945 + 1 +1)$$

In the result of these calculations it was found that $C_{threshold}= 3.000$, $D_{threshold}=0.7550$. Accordingly, the result of the comparison of $C_{threshold}$ value and conformity matrix elements was given in Table 12.

Table 12: Conformity Superiority Matrix

$$F=\begin{bmatrix} — & 0 & 1 \\ 1 & — & 1 \\ 0 & 0 & — \end{bmatrix}$$

And the result of the comparison of $D_{threshold}$ value and nonconformity matrix elements was given in Table 13.

Table 13: Nonconformity Superiority Matrix

$$G=\begin{bmatrix} — & 1 & 0 \\ 1 & — & 0 \\ 1 & 1 & — \end{bmatrix}$$

After finding F conformity superiority matrix and G nonconformity superiority matrix, it is needed to find total dominance matrix for determining the importance order of the decision points. The total dominance matrix (E), which was obtained with the multiplying of lines and columns of F and G matrices, was given below (See Table 14).

Table 14: Total Dominance Matrix

$$E=\begin{bmatrix} — & 0 & 0 \\ 1 & — & 0 \\ 0 & 0 & — \end{bmatrix}$$

After finding the total dominance matrix, the last step of ELECTRE I method is the determination of the importance order of the decision points. For this, it is needed to compare the totals of lines in E matrix with one another (See Table 15).

Table 15: Importance Ordering

NO	PLACE	TOTAL DOMINANCE MATRIX			TOTAL		ORDER OF IMPORTANCE
k_1	Organizational Commitment	—	0	0	$\sum k_1$	0	2
k_2	**Job Satisfaction**	1	—	**0**	$\sum k_2$	1	1
K_3	Motivation	0	0	—	$\sum k_3$	0	2

According to Table 15; the 2nd decision point outclasses the 1st decision point. The 1st and 3rd decision points do not outclass any of the decision points.

5. Conclusion

The purposes of our study on the subject of the integration of multi criteria decision making methods to work psychology are determining the interactions in work psychologies of employees and selecting the positive work psychology output to create the fastest recovery effect psychologically by inclining to the optimum work psychology output administratively.

In order to achieve the objective determined in the study, positive and negative psychologies of the employees who work in a public establishment were measured and data were prepared for ELECTRE, a multi criteria decision making method, by performing correlation and regression analyses. Positive work psychology outputs were used as alternative and correlation and regression values of negative work psychology outputs were used as criteria in the ELECTRE analysis. With this, it was aimed at organizational behaviour studies in the literature, which are nothing more than determinations, to be able to offer a tangible approach. In the result of the ELECTRE analysis performed, three positive work psychology outputs affecting negative work psychology were ranged by their values of efficiency by basing on six criteria. According to this prioritisation, total dominance vales were calculated as "1" for job satisfaction and "2" for organizational commitment and motivation. According to these calculations, the absolute advantage ranking was determined as job satisfaction > organizational commitment = motivation.

In the result of the implementation of multi criteria decision making method, job satisfaction under 6 factors preponderated over other the alternatives. This evaluation enables realization of real improvements in work psychology with optimum sourcing by suspending organization managers from probability dependent result anticipation through suggestions with wider frames when correlation and regression values are examined singly.

Job satisfaction to be ranked as first in order of importance as a result of ELECTRE analysis means that it had the greatest good within organizational climate. Organization managers, who need to take this into consideration, will implement applications primarily intended for job satisfaction for improving positive work psychologies by minimizing fluctuations in negative work psychologies of employees. Here, maybe wrong factor selection and wrong applications will worsen organizational climate and cause psychological threshold values of employees to be exceeded.

This is a pioneering study in the literature with regards to concretization of work psychology researches. It must be remembered that every organization has different climates. So, different decision points will come up in different organizations, where this study will be performed. This is an objective of work psychology discipline. Different solutions must be offered by evaluating every organization and their employees separately.

Suggestions for Job Satisfaction towards the Improvement of Positive Work Psychology;

• One of the suggestions intended for improving job satisfaction in organizations is offering promotion opportunity to employees. Job satisfaction will increase in case of employees to find opportunity of promotion in their jobs.

• Enhancing life standards of employees is another factor as well. Increase of wages and their payment in time and completely will increase job satisfaction of employees. Wage satisfaction is all important as a factor of needs hierarchy.

• The most frequent situation that disturbs employees in organization is a manager not to discriminate those who work and who do not work. Another expectation of the employees, who do their jobs well, is reward except for wage. If organization managers create difference by rewarding employees, who do their jobs well, their job satisfactions will increase.

• Group work underlies many organizations, as well as some broken organizational climates. The perceived extent of the support and collaboration by workmates to employee affects job satisfaction significantly. Job satisfaction will increase, when employees perceive that their workmates helped them through material, intellectual effort and solidarity, with the establishment of a good communication among employees.

• Probably the most important factor of job satisfaction is the satisfaction felt for work itself. Ensuring employees to respect their jobs, revel in the works they carried out and find them significant and necessary will increase job satisfaction. In this particular, organization managers must show positive approach to employees and avoid humiliating and insulting behaviours.

Suggestions Towards Work Psychology Researches in Future;

• Work psychology researches to be carried out in future must certainly be performed in integrative approach.

• Findings obtained from work psychology researches must always be used by being concretised. It should not be forgotten that positive and negative work psychology balance may be upset irreversibly by a wrong move of managers.

• When obtaining data for the studies on work psychology, samplings need to be composed of employees that underwent the same organizational climate. A heterogeneous sampling misdirects the results of the study performed, as well as the organization manager.

• Performing measurements by using more than one multi criteria decision making methods in studies to be carried out by taking this research example will strengthen the determination of right decision.

References

Aamodt, Y. L. (2010). The Role of The I/O Psychologist in Police Psychology, *Journal of Police And Criminal Psychology*, 15(2), 8-10.

Ahmad, T. and Riaz, A. (2011). Factors Affecting Turn-Over Intentions of Doctors in Public Sector Medical Colleges and Hospitals, *Interdisciplinary Journal of Research in Business*, 1(10), 57-66.

Bakker, A. B., Albrecht, S. L. and Leiter, M. (2011). Key Questions Regarding Work Engagement, *European Journal of Work and Organizational Psychology*, 20(1), 4-28.

Barton, B. A. (2002). Stress in Fishe A Diversity of Responses with Particular Reference to Changes in Circulating Corticosteroids, *Integrative and Comparative Biology*, 42, 517-525.

Bouyssou, D. (2009). Outranking Methods, *Encyclopedia of Optimization,* 2887-2893.

Bucklin, B. R., Alvero, A. M., Dickinson, A. M., Austin, J. and Jackson, A. K. (2000). Industrial-Organizational Psychology and Organizational Behavior Management: An Objective Comparison, *Journal of Organizational Behavior Management,* 20(2) , 27-75.

Chowdhury, M. S. and Amin, M. N. (2001). Relative Importance of Employee Values, Attitudes And Leadership Behaviors in Employee Motivation. An Empirical Investigation Monroe College, Bronx, New York West Virginia University of Technology.

Clark, R. E. (2003). Fostering the Work Motivation of Individuals and Teams, *Performance Improvement*, 42(3), 21-29.

Commeiras, N. and Fournier, C. (2001). Critical Evaluation of Porter et al.'s Organizational Commitment Questionnaire: Implications for Researchers, *Journal of Personal Selling and Sales Management,* 17(4), 239-245.

Cook, J. and Wall, T. (1980). New Work Attitude Measures of Trust, Organizational Commitment and Personal Need Non-Fulfilment, *Journal of Occupational Psychology*, 53(1), 39-52.

Çelik, P. and Ustasüleyman, T. (2014). Assessing The Service Quality of Gsm Operators by ELECTRE I and Promethee Methods, *International Journal of Economic and Administrative Studies,* 6(12), 137-160.

Dargah, G. D. and Estalkhbijari, Z. (2012). The Relationship Between The Big Five Personality Factors and Job Burnout. *International Journal of Asian Social Science,* 11, 1842–1850.

Elgün, M. N. (2011). The Foundation Basis And Selection of Set Up Locations of Freight Villages in The National And International Transportation and Trade, *Afyon Kocatepe University - Journal of Economics and Administrative Science* 13(2), 203-226.

Enzmann, D., Schaufeli W. B., Janssen, P. and Rozeman, A. (1998). Dimensionality and Validity of the Burnout Measure. *Journal of Occupational and Organizational Psychology,* 71, 331–351.

Ertuğrul, İ. and Karakaşoğlu, N. (2010). Computer Selection For A Company With Electre And Fuzzy AHP Methods, *Dokuz Eylül University Faculty of Economics and Administrative Sciences Journal,* 25(2), 23-41.

Freudenberger, H. J. (1974), Staff Burn-Out, *Journal of Social Issues*, 30(1), 159-165.

Fu, F. Q., Bolander, W. and Jones, E. (2009) Managing the Drivers of Organizational Commitment and Salesperson Effort: An Application of Meyer and Allen's Three-Component Model, *Journal of Marketing Theory and Practice*, 17(4), 335-350.

Hanin, Y. L. (1993). Organizational Psychology in Sports Setting, *Revista De Psicologia Del Deporte*, (3), 17-30.

Hosseini, S., Nourbakhsh, P. and Sepasi, H. (2013). Relationships Between Time Management and Job Stress, *Archives of Applied Science Research,* 5(1), 301-307.

Janic, M. and Reggiani, A. (2002). An Application of the Multiple Criteria Decision Making (MCDM) Analysis to the Selection of a New Hub Airport, *European Journal of Transport and Infrastructure Research,* 2(2), 113-142.

Jaros, S. (2007). Meyer and Allen Model of Organizational Commitment: Measurement Issues, *ICFAI Journal of Organizational Behavior,* 6(4), 7-24.

Karim, N., Abdul, H. and Noor, H.l N. M. N.(2006). Evaluating The Psychometric Properties of Allen and Meyer's Organizational Commitment Scale: A Cross Cultural Application Among Malaysian Academic Librarians, *Malaysian Journal of Library and Information Science,* 11(1), 89-101.

Katyal, S. (2013). Burnout among Nurses Working in Government and Private Hospitals. *Studies on Home and Community Science, 7,* 83–85.

Kaya, P., Çetin, E.İ. and Kuruüzüm, A. (2011). Çok Kriterli Karar Verme İle Avrupa Birliği Ve Aday Ülkelerin Yaşam Kalitesinin Analizi, *Ekonometri ve İstatistik,* 13, 80-94.

Kazi, T. B., Haniff, A., Maharaj, T. and Karodia, A. M. (2013). History – Work, Organizations And Industrial Psychology (IP), *Arabian Journal of Business and Management Review*, 3(5), 55-61.

Kök, S. B. (2006). İş Tatmini ve Örgütsel Bağlılığın İncelenmesine Yönelik Bir Araştırma, *Journal of Economics and Administrative Sciences*, *Atatürk Üniversity,* 20(1), 291-318.

Kuru, A.l and Akın, B. (2012). Integrated Management Systems Approach to The Use of Multiple Criteria Decision Making Techniques and Applications, *Journal of Öneri,* 10(38), 129-144.

Lewis, R. and Zibarras, L. Work and Occupational Psychology, SAGE Publications, 2013.

Linares, P. and Romero, C. (2000). A Multiple Criteria Decision Making Approach for Electricity Planning in Spain: Economic Versus Environmental Objectives*, Journal of the Operational Research Society* (51), 736-743.

Locke, Edwin A. (1976). The Nature and Causes of Job Satisfaction, Handbook of Industrial and Organizational Psychology.

Lu, G., Wang, H. and Mao, X. (2010). An Using ELECTRE TRI Outranking Method to Evaluate Trustworthy Software, *Autonomic and Trusted Computing Lecture Notes in Computer Science,* 6407, 219-227.

Luthans, F. (1992). *Organizational Behavior*, New York: McGraw-Hill.

Malik, O. F., Abbas, Q., Kiyani, T. M., Malik, K. and Waheed, A. (2011). Perceived Investment

in Employee Development and Turnover Intention: A Social Exchange Perspective, *African Journal of Business Management,* 5(5), 1904-1914.

Manning, D. and Preston, A. (2003). Organizational Stres Focusing on Ways to Minimize Distress, *CUPA-HR Journal,* 54(2), 15-18.

Maslach, C. (2003). Job Burnout: New Directions in Research and Intervention, *Current Directions in Psychological Science*, 12(5), 189-192.

Mawhinney, T. C. (2011). Job Satisfaction: I/O Psychology and Organizational Behavior Management Perspectives, *Journal of Organizational Behavior Management*, 31(4), 288-315.

Mawoli, M. A. and Babandako, A. Y. (2011). An Evaluatİon of Staff Motivation, Dissatisfaction and Job Performance in An Academic Setting, *Australian Journal of Business and Management Research,* 1(9), 1-13.

Mercanoğlu, Ç. (2012). The Relation Between Performance Management and Motivation in Organizations, *Journal of Organization and Management Science,* 4(1), 41-52.

Meyer, J.P., Stanley, D.J, Herscovitch, L., Topolnytsky, L. (2002). A Meta-analysis of Antecedents, Correlates, and Consequences, *Journal of Vocational Behavior,* 61(1), 20-52.

Naktiyok, A. and Küçük, O. (2003). İşgören (İç Müşteri) ve Müşteri (Dış Müşteri) Tatmini, İşgören Tatmininin Müşteri Tatmini Üzerine Etkileri: Ampirik Bir Değerlendirme, *Atatürk Üniversity Journal of Economics and Administrative Sciences,* 17(1-2), 225-243.

O'Driscoll, M. and Randall, D. M. (1999). Perceived Organisational Support, Satisfaction with Rewards, and Employee Job Involvement and Organisational Commitment, *Applied Psychology: An International Review,* 48(2), 197-209.

Örücü, E., Kılıç, R. and Ergül, A. (2011). The Effects Of Stress On Individual Performance In Business Life: A Research For Education and Healthcare Staff, *Academic Sight,* 26, 1-21.

Pines, A. M. and Aronson, E. (1988). Career Bumout: Causes and Cures. New York: Free Press.

Pool, S. and Pool, B. (2007). A Management Development Model: Measuring Organizational Commitment and İts İmpact on Job Satisfaction Among Executives in A Learning Organization, *Journal of Management Development,* 26(4), 353-369.

Poyraz, K. and Kama, B. (2008). Analyzing The Effects of Perceived Job Security on Job Satisfaction Organizational Loyalty and Intention to Leave, Journal of Economics and Administrative Sciences*, Süleyman Demirel University,* 13(2), 143-164.

Prabhakar, G. V. and Ram, P. (2011). Antecedent HRM Practices for Organizational Commitment, *International Journal of Business and Social Science*, 2(2), 55-62.

Riveros, A. M. M. and Tsai, T. S.-T. (2011). Career Commitment and Organizational Commitment in for-Profit and non-Profit Sectors, *International Journal of Emerging Sciences,* 1(3), 324-340.

Rusbult, C. E., Farrell, D., Rogers, G. and Mainous, A. G. (1988). Impact of Exchange Variables on Exit, Voice, Loyalty, and Neglect: An Integrative Model of Responses to Declining Job Satisfaction, *Academy of Management Journal,* 31(3), 599-627.

Salanova, M., Llorens, S., García-Renedo, M., Burriel, R., BresÓ, E. and Schaufeli W. B. (2005). Towards a Four-Dimensional Model of Burnout: A Multigroup Factor-Analytic Study Including Depersonalization and Cynicism, *Educational and Psychological Measurement*, 65, 807–819.

Samad, S. (2006). The Contribution of Demographic variable Job Characteristics and Job Satisfaction on Turnover Intentions, *Journal of International Management Studies,* 1(1), 1-12.

Tınar, M. Y. (1996*). Work Psychology,* First Edition, İzmir.

Turunç, Ö. and Çelik, M. (2010). The Effect of Perceived Organizational Support and Work Stress on Organizational Identification and Job Performance, *Journal of Management and Economics,* 17(2), 183-206.

Ucho, A., Mkavga, T. and Onyishi, I. E. (2012). Job Satisfaction, Gender, Tenure, and Turnover Intentions among Civil Servants in Benue State, *Interdisciplinary Journal of Contemporary Research in Business,* 3(11), 378-387.

Uysal, H.T. and Aydemir, S. (2014b). The Effect of Organizational Climate on Work Psychology: A Research On Health Sector, *Turkish Studies - International Periodical For The Languages, Literature and History of Turkish or Turkic*, 9(2), 1557-1574.

Uysal, H.T. and Yıldız, M. S. (2014a). Effect of Work Psychology on The Organizational Cynicism for Employee Performance, *The Journal of International Social Research*, 7(29), 835-849.

Uysal, H.T. and Yavuz, K. (2015). Test of Complicity Theory: Is External Whistleblowing A Strategic Outcome of Negative I/O Psychology?, *European Journal of Business and Management*, 7(18), 115-124.

Yavuz, E. (2009). A Study on Employees' Attitudes Towards Transformational Leadership and Organizational Attachment, *Journal of Business Research*, 1(2), 51-69.