EMOTIONS IN BUSINESS ORGANIZATIONS: AN EMPIRICAL STUDY ON RELATION BETWEEN EMOTIONS

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Abstract

This paper aims to clarify the effects of emotions on organizational life based on the complex adaptive systems (CAS) approach and proposes a new frame for defining and examining emotions in organizations. In this frame, following the CAS approach, emotional interaction between drivers and attractors within organizations is shown. The proposed framework was tested by conducting a survey on a cross-sectional sample of 325 national and international, public and private sector employees. Free or passive word association was requested from the participants of the survey.

The research study was designed and conducted in three stages. At the first stage, the emotional terms that are mostly used in business organizations were sought out. At the second stage, emotional associations were asked to participants. At the third stage, affects of these emotions were examined in terms of the CAS rules.

The results indicate that emotions such as anger, fear, and sadness act as source emotions to other (result) emotions. Although there were no significant differences among people from different cultures in terms of how emotional concepts were defined, emotions changed with organizational characteristics.

Keywords

Emotions In Organizations, Top Management Teams, Strategy, Organizational Behavior, CAS

1. Introduction

There is a common belief that the rational mind is distinct from emotions. The notion is based on the assumption that emotions are opposed or even harmful to rationality. Weber describes the ideal of administrative bureaucracy as one that has succeeded in "eliminating …love, hatred and all purely personal irrational and emotional elements, which escape calculation." (Gerth and Mills, 1946: 216). Contrary to this belief, in especially early organizational literature, many researchers from different scientific disciplines claim that people are emotional by nature. Breugelmans et al. (2005) describe emotions as bodily feedback. Ekman (1992) calls them as facial expressions. Averill (1974) and Frijda (1986) define emotions as cultural symbols whereas Schachter (1962) defines emotions as cognitive interpretations of arousal.

These differences in definition raise the question as whether there are different kinds or concepts of emotions or not. De Rivera (1977) considers emotions in 3 different ways. First as *a psychological state* related to instinct; second as the *perception of value* in response to a particular event or incident and third as a *form of experience* based on transformation which serves to enhance our understanding of a particular event or situation.

Consistent with De Rivera, Dahl (1979) and defines emotions as a multifaceted phenomenon consisting of *behavioral, expressive, and physiological reaction* in addition to subjective feelings. Sheehy (2002: 174) contributes to this definition by broadening it where emotions become "*conscious experience of a particular feeling or state which leads to both internal and external reactions*". On the other hand Jhonson & Oatley (1989) and Kramer & Hess (2002) define emotions in a semantic perspective. In these definitions, emotion is accepted as a continual multidimensional process which is based on causal relations and influences decisions that lead to behaviors. Crawford et al. (1992) and Russell (1991) claim that emotions have social meanings which are committed to cultural values. This claim is pivotal because it defines the connection between culture and emotions.

Like Fox et.al (2001), Fajans (2006) asserts emotions as experiential concepts which "*mediate relations between the subject and environment, and are provoked by events outside the individuals which are activities that negotiate the interface between inside and outside*".

Although it is not clear in this definition whether the environment includes the cultural issues or not, it can be deduced that emotions affect perception.

On the other hand detecting emotions is another subject of interest in literature which based on three models (Munezero et al, 2014); categories of basic emotions, emotion dimensions, and cognitive appraisal categories. These models differ with respect to the number of emotions they explained (p.106).

In this context, for the writers of this paper, it seems obvious that within the organizational context, emotions need more attention for several reasons. First reason is that there is relatively a lack of research in the field of organizational studies as stated above. In most of the studies, emotions are triggered by individual's interpretation of an event which elicits reactions in many bodily systems. In addition to this individualistic perspective, emotions can be seen as cultural adaptive processes in organizations that allow for a response to environmental and social challenge. In the light of these, this paper poses a research question as to whether there is a structure of interaction between emotions in business organizations.

The second reason is because the effects of traditional approach to emotions starting from ancient times of Plato, organizational and management literature still focus mostly on the customer perspective and their negative implications. It may be more informative to look for a more holistic perspective by examining the most common emotional concepts in source - result relations.

The third reason is the need to search for any causal relation between personal attributes (such as age, gender, education level and type) and organizational positions (such as job requirements, seniority and status) in emotion generation.

In this context this study is designed to define emotional structure of organizations with an agent based approach.

2. Emotion in Business and Management Literature

Contrary to the deduction stated above in different scientific branches, business and management literature still lacks many answers about emotions. For the authors of this paper the reasons of this lacking and the ways in which this void can be filled can be classified into three.

Firstly the concept of emotion is traditionally accepted as a "soft factor". Again, the reason for this acceptance may be the absence of research studying the link between emotions and some "hard subjects" such as decision making, group building, strategy, and

performance criteria. Although the study of emotions in organizational settings has gained importance in recent years, the issue of the relationship between emotions and those "hard subjects" remains unsolved (Weiss and Brief, 2001).

Even though some researches in management literature have been trying to show the importance of emotions in organizational life for decades, it can be claimed that the studies of emotions in management literature begin in 1980's with Hochschild's book "The Managed Heart". She noted that (1983) many managers require from their staff a capacity to control their expression of emotions in the interests of corporate goals. She called this the "*commercialization of human emotions*". In 1990's with the help of Goleman's book on emotions, the notion of "*emotional intelligence*" emerged as an umbrella term which is concerned with the ability to manipulate and make use of emotional experience.

Secondly, the difficulties in predicting and measuring emotions can be mentioned. In the late 80's and early 90's, the study of emotions was still largely in a conceptual phase. By the mid 90's problems of unpredictability and immeasurability of emotions have also been solved. Emotions can be reliably measured by various verbal (eg., rating scales or word association-WAT) (Szalay&Deese, 1978; Hupka et.al., 1993) and non-verbal (eg., FACS or Facial EMG) methods (Larsen & Fredickson, 1999; Parrot & Hertel, 1999). These methodological solutions have opened up opportunities for an integrative account of different emotional influences on top management teams. Word Association Test (WAT) and Facial Action Coding System (FACS) became the most popular tools to measure emotions.

WAT is considered to revile personal emotional structure. This methodology helps to identify the cognitive relation between the stimulus concept and mental reactions of the contributor. The WAT is relatively simple and free from difficulties of the questionnaires, such as biases and confusions in interpretation.

FACS or Facial electromyography (EMG) methodology is based on defining observable facial muscle movements. This methodology uses small surface electrodes placed on a face to record expressions of emotions (like happiness, anger, sadness, and fear). The main benefit of this approach lies in the ability to measure the *natural* changes in emotional state, and not requiring any cognitive effort.

Thirdly, there seems to be a lack of a framework for examining the emotional ecosystem. For the sake of filling out this void this study uses the Complex Adaptive Systems (CAS) theorem. Different from general tendencies in emotion literature, the writers of this paper define emotional systems in CAS terminology. In this perspective, employees are defined as

agents that receive signals (emotions) from environment. They interact with the other agents through their own rule systems (like personality or demographic specs). This definition of emotion is based on the main features of any CAS as stated by Holland (2006: 1-2):

1. *Any CAS consists of large number of agents that interact by sending and receiving signals. Moreover the agents interact simultaneously, producing large numbers of simultaneous signals.* In business organizations, people interact with each other by transferring emotions. The agents (people in business organizations) are expected to be grouped based on the level of this interaction. As the agents interact with each other simultaneously, grouping has a dynamic characteristic which is influenced by its own environment (working subject, group culture etc.). Hochschild (1983) sees emotions as a commodity which can be managed, controlled, trained, and evaluated. Therefore, it can be stated that personal identity is directly associated with emotions. Ashkanasy (2002: 15) asserts that subordinates are influenced by perceptions in leader-subordinate relations. That means perceptions have direct interaction with emotions. The findings of these researchers lead us to raise the "uniqueness of emotional environment" question. More specifically, can we say that groups of people within organizations can be separated from the other groups in terms of their emotions? If it is so, this finding can be a clue for adaptation of emotions to the type of work and working environment.

2. *The actions of agents usually depend on the signals they receive.* Reactions of people are influenced by others' emotional actions or by perceptions of environment. Hearn (2004) emphasizes the importance of gender as an important element of emotional environment. He states that the dominant factor in emotional climate of organizations is men's emotions. As organizational climate is inherited from social emotional environment, it is constructed by men. He also states that mechanistic paradigm besides masculinity is seen as a predominant effect. In literature, staff-line relations or top-down relations in organizations are also subjects of the source of emotion. Some researchers call this as "emotion management" (Green and Mitchell, 1979; Krammer and Hess, 2002), some others "emotional intelligence" (Goleman, 1995). On the other hand, emotions stemming from relations are not special for the workplace but are special for every social organization and for some researchers (Waldron, 2000) that kind of emotions is the ordinary one. In their valuable study on emotion and status in workplace, Tiedens et al. (2000) found that high-status people are prone to be sad. Expectations about emotions help to understand the social functions of emotions. As another source of emotion, job satisfaction has been examined since the beginning of discussions about Hawthorne studies. Actually discussions on the Hawthorne

experiments still continue (Greenwood and Balton, 1983), thus, it should be noted that one of the most important findings of management science came out of these experiments that people do have emotions toward work. Czaplicka et.al. (2010) found that if the transfer of emotion between agents is out of normal limits (just a few or too much) the task execution efficiency will be low. Contrary to this paradigm, the early challenges were to explore the ways in which organizations control the emotions of employees for achieving the organizational goals (Domagalski, 1999: 835). This dominant paradigm of organizations affects the studies on subject of emotions in organizations as well as the other disciplines. Another entity of emotional environment may be type of emotions. Lowenstein et al. (2001) argue on two types of emotions according to anticipation. First type is "anticipatory emotions" which are immediate visceral reactions (fear, anxiety etc.) to risks and uncertainties. The second type is "anticipated emotions" which are expected to be experienced in the future. Gilbert et.al. (2004) also argue that emotions can be affected in two different types. Gilbert's division is based on experience and forecast. From this perspective emotions can be accepted as variables which are shaped by interactions between employees in organizations.

3. *The agent can react to the current situation by executing a sequence of rules.* According to Hebb (1949) and Weiss and Cropanzano (1996), emotional states are seen to lie at the core of attitude formation and employee behavior in organizations. Devis et. al. (2009) found that emotions are associated with responses as opposed to stimuli. In social structures like business organizations, the basic domain to analyze the interaction between people is "micro interaction" which is defined by Kemper and Collins (1990: 33) as human construction and an action of "face to face" relationship. In this perspective, employees in any organization are considered to be interacting with each other rather than the organization itself. In their attribution, Ashkanasy and Gallios (1994) demonstrated that the nature of the task and personalities are important determinants of relations (Ashkanasy, 2002:13). This result draws attentions to the point of interactions between employees and jobs.

4. *The agents in CAS change over time. These changes are usually adaptations that improve the performance rather than random variations.* Putnam and Mumby (1993) argued "the necessity of emotions for organizational effectiveness" even if they stem from private life. This source can be summed in "Multiple role theory". Individuals have some roles in the workplace as boss, supervisor, etc. together with some others as spouse, parent, friend, etc., and these combinations of roles cause special emotions for individuals. On the other hand, when people violate emotional expectations, they might change perceptions about the

level of relationship that is most appropriate for them and/or make distributive behaviors more likely (Tiedens et.al 2000:572). As the responsibility for dealing with future belongs to top management teams in organizations, it is expected that emotional environment can be divided into two parts. At the upper level, more forward emotions (hope, will etc.) should be expected while at lower levels more backward emotions (disappointment, regret etc.) are to be expected. Ben-Ze'ev (2000) asserts that forward looking emotions contain elements of wanting; backward looking emotions contain the elements of wishing. For example, fear and hope are forward looking emotions while anger is a backward looking emotion. With a different perspective, Bagozzi and Dholakia (1999) assert the types of emotions as positive and negative. Positive emotions lead to motivation that influence goal directed behavior. Some positive emotions such as happiness and pleasure motivate a person to goal directed action. But Hess (2003) points out the difficulty of classifying emotions as "good" or "bad". For instance, anger is disruptive and angry employees attack others. Yet, from the perspective of emotion theory, anger is a fascinating emotion because it is not necessarily a negative destructive emotion, but can be a positive emotion. Brunch and Ghoshal (2003) define emotion, besides some other cognitive and physical states, as a dimension of organizational energy. They propose that this energy is typical for organizations and the responsibility of building and directing this energy belongs to leaders. Thus, leaders need a strategy for it. In this perspective, it can be deducted that the results of leader-subordinates interaction affects the emotional environment in organizations. Anzaldua (1990) and Fiedman (1995) also accepted that the emotional context may differ among the organizations. Sanchez and Sanz (2014) suggests that the results of patterns of evaluation of relevant stimuli create emotions.

The framework stated above, represents emotions as living organisms. In this analogy, emotions behave as or are at least part of a rule based system which makes it possible to define emotional environment as complex adaptive systems (CAS). Some first order or source emotions in organizations as agents in CAS terminology get emotional impulses and lead to second order or result emotional outputs. In this case, it can be assumed that emotional system can adapt in organizational environment.

For this understanding of the concept, review of emotion literature shows highly parallel findings. With this perspective there should be an emotional rule table (rules as building blocks in CAS) for every individual source emotion in working environment. In this table, rules should be listed for emotional actions. This table should represent simple IF conditions and THEN actions. For emotional perspective, conditions are based on daily business

interactions (job description, inter personal interactions, customer relations, etc.); for every specific condition there will be some emotional actions or reflections. For example; "IF the customer is not satisfied THEN frustration increases", "If the customer is satisfied by your colleague THEN your envy level increases", "IF you fail in fulfilling your responsibility THEN fear will increase", etc. (Table 1).

Within this table, the first part of the rule (IF side) consists of tags and properties. In an organizational context, the tag can be an event, an action of any agent (self or other), aspect of an object, or emotional climate of the organization. For every tag in business environment (customers, job, standards, colleagues, subordinates, leaders, rivals, etc.) there will be different properties (for example customer likes, expects, behaves, etc.). These tags and properties construct specific conditions (for example, if customer expects more AND if rivals are able to offer AND if leader expects you to satisfy the customer…). Holland (1995: 52) called this as parallelism.

In parallelism it is important to determine a stimulus. Ortony, Clore and Collins (1988) define the stimulus in three different functional classes; consequence of events, actions of agents, and aspects of objects. Scherer (1984) asserts that in an emotional process there are different subsystems. The first of them is 'stimulus evaluation subsystem' which deals with perception of a stimulus event and generates some stimulus evaluation checks. These checks are on novelty, pleasantness, significance, potential, and compatibility. With the same view, Frija (1986) defines some functional components of emotion in which the first one is the analyzer. The duty of the analyzer is to check if the input to the agent is one of the known types or gives some clue about its cause.

Applications of rules create some results. These results show the use of rules which gives strength to the rules. Strengths define the adaptability power of emotional CAS. Since this process is specific for any business organization it is needed to define organization specific behaviors in emotional CAS.

Table 1: *Emotional Rule Table for Business Organizations**

IF		THEN
TAG	**PROPERTIES**	**ACTION**
TAG-1		
TAG-2		
…		
TAG-n		

(*) Adapted From Holland, 1995:52

3. Methodology

In this context a total of 325 employees from private and public sectors participated in this study as shown at Table-2. The sample is comprised of 223 men and 102 women from 5 private companies and 3 public organizations. All the organizations are in construction sector.

Construction sector is purposively selected because of its volume in world trade. About one-tenth of the global GDP comes from this industry (Economywatch, 2012). The construction sector represents approximately 7 % of the people employed worldwide and has high level of interconnectedness with other sub sectors, and the high level of interpersonal interaction found in this industry is expected to generate more emotions. As for the organizations, they were selected according to their size and market share. More specifically, larger organizations with larger market shares were chosen. The three public organizations are main actors and regulators. Because the main aim of this study is testing the CAS paradigm in exploring emotions in business environment, the number of participants is expected to be enough.

Table 2: *Demographic Information on Participants*

	Status (%)		Age (%)		Level of Education (%)		Seniority(%)		Field of Education (%)	
	High	**Low**	**High**	**Low**	**High**	**Low**	**High**	**Low**	**Science**	**Human**
Male	32	68	38	62	19	81	45	55	62	38
Female	47	53	31	69	25,4	74,6	38	62	52	58

These organizations are mostly multinational companies located in big cities of Turkey. Sizes of the business organizations vary according to employment and profit. Most of the participants have undergraduate degrees (46. 7%) followed by a group of participants with graduate degrees (21. 3%). The status of the employees was determined by the authors according to their positions on their organizational charts and roles.

4. Design and Participants

In questioning the applicability of an organization specific emotional CAS structure, the authors of this paper designed a three-stage research study:

At the first stage, we wanted to extract the emotional terms that were mostly used in business organizations.

At the second stage, emotional associations were asked to be made by the participants.

At the third stage, affects of these emotions were examined in terms of personal and organizational dimensions.

The first stage was designed to define emotional stimulus concepts. This was done in order to categorize the emotions easily and to be able to use them at the second stage. By the end of the first stage, emotions were classified according to the sources of these feelings in business environment. Two dimensions were selected as main indicators: personal and organizational. In the second stage, a questionnaire was designed in accordance with the results of the first stage. The questionnaire used the most popular five emotional terms. The second stage lead us to explore the emotional action map, which in fact shows the most popular emotional reactions to main emotional stimulants. The third stage was planned to show if there was any streaming of emotional reactions by the means of personal and organizational dimensions. Personal dimension was defined by attributive indicators such as; age, gender, level and field of education. Organizational dimension was defined by institutional positioning indicators such as; status, job requirement, and seniority.

5. Measurement Tool

Two different questionnaires were used for the first two stages. At the first stage completion of a sentence was expected from 150 participants. These participants played an exploratory role at the second stage. Most of them participated in the second stage, too. The sentence had the "I usually see others feel …in my working environment" pattern. From the answers, 5 most popular perceived emotional terms were collected as stimulus words for the second stage.

At the second stage, another questionnaire was designed which was only two pages' long. On the first page, besides some demographic data, organizational information was requested such as, level of hierarchy, working position, and responsibilities in order to categorize the participants according to their status By hiding the stimulus word appearing on page two, the first page also served the aim of getting instant reactions from participants.

On the second page only one stimulus word was written. Participants were asked to write associative meanings in the blank space.

As discussed before, there are several methods in the literature that can be used to trace and show the cultural similarities and differences in meaning of some emotional terms. As the aim of this study was to explore the associations of emotions with some cognitive terms, Szalay and Deese's (1978) procedure was chosen.

Participants were requested to write as many words associated with the stimulus concept as possible within one minute to the second page. After the first minute, the participants were requested to turn to the first page. The questionnaires were distributed equally to each group in terms of concept, status and gender.

6. Findings

Table-3 shows the results of the first stage with the main indicators. The findings show that majority of the participants have anger.

Table 3: *Stage-1 Results*

	High Status			Low Status			TOTAL
Emotions	Female	Male	Subtotal	Female	Male (64)	Subtotal	(150)
Anger	18	23	41	22	39	61	102
Fear	13	19	32	15	47	62	94
Envy	15	16	31	17	38	55	86
Sadness	12	15	27	17	37	54	81
Guilt	10	14	24	12	26	38	62

Anger is a response to an offense that is thought to be undeserved. For Ben- Ze'ev (2000: 380) "we blame the other person for such an unjustified offense, whether or not the offense was deliberate or due to negligence or lack of foresight." In a business environment for an angry worker, other's action is perceived as unjust and also a threat for his/her position. In the sample most of the workers feel like that. The second popular emotion is fear which implies avoidance of an undesired situation and the probability of such a situation. Fear expresses the most significant warning sign of threats to the organism (Ben- Ze'ev, 2000: 480). In a business environment, workers may fear because they feel a threat to their positions. As the third popular emotion in the study, envy represents a negative evaluation of a personal inferiority. It refers to a fear of loss in a position (Ben- Ze'ev,2000: 284) and a

general theme rather than a specific person or position. In business environment, workers may envy any person who has better conditions than they have. So, envy indicates a compensation for the subjective evaluation of a negative difference between the positions of two parties. The fourth emotion found popular in the research is sadness. Sadness is concerned with one's own bad fortune and typically not associated with passivity in affairs. In business environment sadness implies despair. The last stimulus concept collected at stage one is guilt. Guilt is concerned with a deed which has violated certain norms (Ben-Ze'ev,2000: 501). People find others guilty because they think that others violate a certain norm or rule which harms someone. Results show that most of the popular emotions found in this study are similar to Johnson-Laired and Oatley's (1989: 103) findings. This result provokes the discussion of affective lexicon. As it is not one of this paper's interests to discuss the subject in deep, for the sake of concordance we preferred to carry anger, fear, and sadness as the most popular emotional terms to stage two. At stage two, whether these emotional situations could be accepted as CAS rules in business environment was investigated.

The correlations of emotional concepts with their sources were calculated as shown in Table-1. For example, if any concept was correlated with gender or status it was accepted as a CAS rule. Then the tag in this position would be gender or status. Properties in Table-1 would become the emotional definitions like condition in which the source emotion generates the result emotions, motion which generates the result emotion and differences that the source emotions make on the result emotion. Then action in Table-1 will be the result emotion itself.

The results of stage two are shown in Table-4. In this table, answers to each stimulus concept are ordered according to their frequencies and higher order answers which have higher coefficients.

Table 4: *Stage-2 Results.*

Stimulus Word	Result Word	Order						Sub Total Participants	Weighted. Score
		1	**2**	**3**	**4**	**5**	**6**		
Anger	bitter	21	24	17	11	5	2	80	359
	frustration	22	17	16	12	6	3	76	332
	hate	19	25	21	12	7	9	93	382

	fail	13	12	23	25	3	4	80	315
	unsuccessfulness	16	16	13	21	16	4	86	327
	wrath	17	15	17	12	26	4	91	337
Fear	worry	24	15	12	5	16	8	80	322
	hurt	24	14	21	13	8	4	84	357
	scare	19	24	21	9	11	3	87	370
	danger	16	11	9	17	14	6	73	272
	alone	9	13	24	9	11	18	84	282
	nervous	11	15	16	18	14	9	83	296
Sadness	loneliness	20	13	17	11	9	14	84	318
	lost	24	16	11	9	7	18	85	327
	disappoint	18	9	12	9	15	14	77	272
	Hopeless	19	17	10	8	13	12	79	301
	Upset	14	11	15	9	16	13	78	271
	Regret	12	14	9	16	13	18	82	270

Since Szalay and Deese (1978) found that 61% of initial responses reappear on post-tests, the first response is scored as 6. Then, other weighted scores become 5, 4, 3, 2, 1 for 2, 3, 4-7, 8-9 and 10-11 respectively.

The emotional words were tested for correlation with basic business indicators; organizational level, job requirement, age, gender, education level, seniority, and field of education. Among these, job requirement was categorized as forward looking or backward looking based on the definition of the participant's work. For example, it was forward looking if the employee's work was about planning, strategizing, etc. and backward looking if it was about logistics, archiving, etc. Another indicator, level of education was accepted as high if it was more than 14 years, otherwise it was accepted as low. Seniority, being defined as the period of time spent in the same organization, was high if the period was longer than 10 years. Field of education was categorized simply as physical (hard) sciences and social (soft) sciences.

For each categorization weighted scores were calculated. In order to see if the differences between these weighted scores were statistically significant, *independent samples "t" tests* were performed with standard deviations and averages of weighted scores. In Table-5, numbers written in bold indicate statistically significant relations.

A significant relationship between indicators and emotions show that a CAS rule can be applied. Each result word has a weighted score which is based on the priority of answers and the calculated average strength of those answers. Average strength was calculated by dividing weighted scores by number of attendees.

With a closer look at the results, main tags can be grouped as personal and job properties. Age, gender, and level of education can be categorized as personal properties. As shown in Table-5, difference in age reflects on each one of the three emotions in terms of the strength of stimulating two resultant emotions. Coming to gender, being a male or female makes a difference in anger stimulating bitterness, fear stimulating nervousness; and sadness stimulating loneliness, being lost and hopelessness. For the last personal property, difference in level of education creates difference in each one of the three main emotions where that particular emotion strongly stimulates at least one resultant emotion.

Table 5: *Stage-3 Results*

Stimulus Word	Result Word	Status N		t-test	Job Requirements N		t-test	Seniority N		t-test	Age N		t-test	Gender N		t-test	Level of Education N		t-test	Field of Education N		t-test
		High	*Low*	*Sig.*	*Forward*	*Backward*	*Sig.*	*High*	*Low*	*Sig.*	*High*	*Low*	*Sig.*	*Male*	*Female*	*Sig.*	*High*	*Low*	*Sig.*	*Science*	*Human*	*Sig.*
Anger	bitter	32	48	-6,11	37	43	**7,87**	36	44	-3,51	42	38	-1,33	49	31	**4,12**	35	45	**7,35**	47	33	-0,80
	frustration	33	43	-1,55	32	44	-1,62	34	42	1,86	40	36	-3,31	40	36	-0,71	31	45	-0,77	35	41	-1,98
	hate	33	60	-3,27	31	62	**2,42**	35	58	-1,99	41	52	**3,05**	61	32	-2,37	36	57	-1,37	36	57	**3,96**
	fail	31	49	1,67	35	45	-6,97	33	47	-4,02	43	37	-8,23	49	31	-5,23	34	46	0,23	39	41	-2,97
	unsuccess	32	54	-1,36	34	52	**3,42**	34	52	**2,65**	41	45	-1,88	54	32	-0,78	32	54	**5,45**	37	49	-1,48
	wrath	33	58	**7,61**	35	56	-2,13	35	56	1,43	47	44	**9,85**	58	33	-10,40	34	57	-5,14	34	57	0,44
Fear	worry	32	48	-7,97	34	46	-12,47	33	47	-1,99	42	38	1,49	49	31	-8,25	36	44	-2,60	39	51	0,62
	hurt	32	52	-2,42	37	47	-2,75	35	49	-1,22	45	39	-2,79	50	34	-19,37	34	50	**2,89**	42	42	1,12
	scare	31	56	-3,06	34	53	**15,79**	36	51	-1,37	46	41	**3,91**	55	32	-2,00	31	56	-7,14	38	49	-2,28
	danger	32	64	-10,06	32	64	**6,52**	34	62	-2,80	47	49	-6,84	63	33	-0,70	32	64	-3,36	41	55	-3,45
	alone	34	50	-0,93	31	53	**3,17**	35	49	**1,98**	45	39	-2,53	53	31	-5,96	31	53	-2,73	36	48	-1,58
	nervous	31	52	-5,11	34	49	-1,72	33	50	0,00	39	44	**4,37**	51	32	**17,21**	34	49	1,43	34	49	**2,57**
Sadness	loneliness	32	52	**3,65**	33	51	1,89	32	52	0,64	42	42	**2,51**	50	34	**8,82**	34	50	**2,06**	37	47	-1,81
	lost	31	54	-2,28	35	50	0,77	34	51	1,59	48	37	-3,93	54	31	**2,43**	31	54	-1,68	32	53	-3,78
	disappoint	30	47	-7,50	32	45	**2,84**	33	44	1,16	39	38	-1,65	46	31	-1,94	33	44	-0,41	34	43	1,77
	hopeless	31	48	0,13	34	45	0,40	35	44	-1,73	43	36	**3,55**	45	34	-2,06	32	47	-3,83	36	43	1,93
	upset	32	46	**2,52**	31	47	-1,38	33	45	**2,12**	42	36	-2,20	46	32	**3,61**	34	44	-1,66	32	46	-1,41
	regret	30	52	-4,45	34	48	-1,96	32	50	-2,63	44	38	-2,82	51	31	1,12	35	47	0,00	39	43	-1,10

The second group of main tags, being the job properties includes status, job requirements, seniority, and field of education. As can be seen from Table-5, difference in status makes a difference in terms of 'anger' stimulating 'wrath' as well as 'sadness' stimulating 'loneliness' and 'upset'. Fear does not seem to be sensitive to status differences in terms of stimulating other emotions. However whether a job is forward or backward looking reflects on fear's stimulation of being scared, feeling danger, and being alone. The nature of job also makes a difference for anger (stimulating bitter, hate, unsuccessfulness) and sadness (stimulating disappointment). For the distinction between high and low level seniority, there is a change in the strength of anger stimulating unsuccessfulness, fear stimulating being alone, and sadness stimulating being upset. For the last job property, namely field of education, difference between the groups of science and human educational fields seem to reflect on anger stimulating hatred and fear stimulating nervousness. Overall, these results indicate that with the exception of "fear" which does not seem to relate to status in terms of stimulating other emotions, all of the seven main tags work out. Therefore, for each stimulus emotion a special influence would be expected on result emotions based on organizational dynamics.

7. Discussion

Since the aim of this study was to test whether the emotional behavioral structure of business organizations could be defined with the CAS approach, the findings should be rephrased within CAS ontology. To do this, after finding the most popular stimulus words (emotions), result words (emotions) were found for each of those. Then, for each of the result emotions weighted scores were calculated. These calculations were tested by using t-test to check whether they showed statistically significant differences or not. Statistically significant differences lead to the formation of rules in CAS terminology. For the 3 basic emotions handled in this study, rules are listed as follows:

Rule-1: If status is high, 'anger' increases wrath.

Rule-2: If the job is forward looking, 'anger' increases bitterness, hatred, and unsuccessfulness.

Rule-3: If age is high, anger increases hate and wrath.

Rule-4: If gender is male anger increases bitterness.

Rule-5: If level of education is high, anger increases bitterness and unsuccessfulness

Rule-6: If seniority is high, anger increases unsuccessfulness

Rule-7: If field of education is hard sciences, anger increases hatred.

Rule-8: If the job is forward looking, fear increases scare, danger, and alone.

Rule-9: If age is high, fear increases scare, and nervous.

Rule-10: If gender is male, fear increases nervous.

Rule-11: If level of education is high, fear increases hurt.

Rule-12: If seniority is low, fear increases alone.

Rule-13: If field of education is science fear increases nervous.

Rule-14: If status is high, sadness increases loneliness and feeling upset.

Rule-15: If the job is forward looking, sadness increases disappointment.

Rule-16: If age is high, sadness increases loneliness and hopelessness.

Rule-17: If gender is male, sadness increases loneliness, lost, and upset.

Rule-18: If level of education is high sadness increases loneliness.

Rule-19: If seniority is high, sadness increases upset.

While for each organization there can be specific CAS rules, the structure of the system shows some typical characteristics.

As a limitation of this research, international cultural perspectives may be added to the model. By doing so, more comprehensive approach can be constructed. This research shows that emotion in business organizations can be examined by CAS methodology. It can be possible to reach a more comprehensive view of the structure through the use of special computer programs based on artificial intelligence. For any attempt at defining the emotional environment of the organization, the same methodology can be suggested.

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