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An empirical study of the pathology of organizational communications based on three branches model: A case study

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ABSTRACT

Understanding obstacles in front of communication system has turned into a critical task executed by managers. Present study analyzes major vulnerabilities to organizational communication from structural, behavioral and contextual aspects. The statistical population includes employees and managers in the headquarters of National Iranian Oil Company. After assessing the validity and reliability of a conceptual model, we used Kolmogorov-Smirnov test, T-test and F-test for analyzing our data. The results show that priority of communication barriers are as follows: structural elements like centrality and formality. Contextual elements like cultural and technical barriers and finally behavioral elements like perceptual and human barriers.

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1. Introduction

Communication and organization are strongly complementary. Neither communication nor organization comes first; they are the same event . . . the process of communicating is the act of organizing, and efforts to organize are communication bound (Peppers & Rogers, 1995). Therefore, by understanding communication and organizational activities as attached topics, it is easier to understand why corporate culture can only be developed and maintained through the support of a communication strategy. Communication is widely used in running almost all organizations effectively. Effective communication is essential for any business or organization to prosper. It cuts out on wasted time and provides both customers and employees with the necessary tools to succeed and find satisfaction. When communication is not effective, the end result is an increase in production time and a decrease in the bottom line. In order to avoid this outcome, effective communication must be in place (Joey, 2002). Effective

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communication is always a significant factor in successful management. Experience shows that miscommunication brings about organizational confusion. In an organization, communication is a process to link parts of a system (Moharamzadeh, 2003: 39-40).

Analysis of this exchange reveals that communication is a two way process consisting of consecutively linked elements. Managers who understand this process can analyze their own communication patterns as well as design communication programs that fit organizational needs (Kinicki & Kreitner, 2006). It is necessary in all levels for personal and organization development (Greenbaum, 1974: 740). Effective communication among high level managers and other employees play a key role in developing collaboration among coworkers (Bakker, Albrecht, & Leiter, 2011). Organizational communication is a measure to prevent uncertainty (Brown, 2007: 372). Communicational methods of a company are a set of formal and informal ways to communicate chosen by employees to contact one or more individuals inside the company. The management is responsible for the effectiveness of the communication system and for employees' access to necessary information in right time (Carrière & Bourque, 2009: 37).

The elements in the communication process determine the quality of communication. A problem in any one of these elements can reduce communication effectiveness (Keyton, 2011). Scholars believe the lack of good communication results in misunderstandings and organizational problems. Solving this problem requires reforms in the patterns of communication (Alvani, 2006: 169). Implementing effective communication systems is a challenging task, demanding much effort especially in large, international organizations (Davis, 2004: 276). Since communication processes occur in the organizational context, it is always hindered by some sort of obstacles or noises. Noise refers to anything that obstructs communication. It might happen from inside or outside an organization. If noise exists in communication process, complete clarity of meaning and understanding does not occur. The author, George Bernard Shaw wrote, the greatest problem with communication is the illusion that it has been accomplished (Shaw, 2011).

Because of the importance of communication in large companies, we intend to analyze organizational communications in National Iranian Oil Products Distribution Company. The company has operated for over 80 years and occupies a prominent role in economic development of the country. National Iranian Oil Company ranks as the world's second largest oil company, after Saudi Arabia's state-owned Aramco. This company also has more than twenty, which make NIOC even more strategic and prominent in field of economy. Because of a lot of subsidiaries and employees coordination among them is an important turning point. Given the crucial importance of the Company's tasks, its managers and authorities always pay careful attention to the success and efficiency of their communication system. Obviously, a flaw in communication results in poor service. For this reason, the present research tries to find major obstacles to communication in National Iranian Oil Products Distribution Company. We used three branch patterns of structural, behavioral and contextual factors to discover the mentioned obstacles. By behavioral factors, we mean the elements linked to the manpower of an organization. Structural factors include the organized relations established in an institute and contextual factors are the situations and conditions that generate behavioral and structural factors (Mirzai, 2000). This kind of categorization helps to better understanding of communication barriers and examine these barriers in an ordered manner.

This study contributes to the literature in several ways. First the study looks to organizational communication from different point of view and looks for different communication obstacles which mentioned in recent studies and literature, the finding enhance our comprehension of organizational communication and the barriers in front of it. Second this is the first study which analyzes communication issues in one of the biggest companies in region, and the finding emphasize in every company no matter how wealthy it is, there are communication issues and should pay attention to them. Finally the study categorizes these obstacles in three dimensions which is new perspective and would be helpful in understanding and solving these problems.

Here, we studied theoretical principles and previous researches to find communication obstacles and identify the distinct category each belongs to. Then, assessing the validity of our findings, we suggest a pattern of obstacles to organizational communication. Finally we will study the obstacles to communication in National Iranian Oil Products Distribution Company.

2. Literature review

Communication is a key factor for organizational effectiveness (Downs & Adrian, 2004; Hargie & Tourish, 1993; Quinn & Hargie, 2004; Robson & Tourish, 2005; Verčič, Verčič, & Sriramesh, 2012). Communication can be defined as the "exchange of information between a sender and a receiver, and the inference (perception) of meaning between the individuals involved (Bowditch, Ben-Ner, & Jones, 1997). It happens when a thought affects someone else and creates the same experience in his/her mind as it did in the mind of the first person (Anata, 2009, 1). Communicational interruption is a major managerial problem (Gizir & Simsek, 2005: 201). According to Scott (2005), communication is about sending, receiving, and understanding information and meaning. He claimed that "receiving" and "understanding" are the most important operations in the communication process, since the response of the receiver defines whether the communication attempt is successful or not. He further defined two types of communication that are related to workplace communication; the effective and the efficient communication (Scott, 2005). Effective communication might be considered as the foundation of a modern organization (Mazruee, Bazargani, Ghazanfari, & Bozenjani, 2010: 52). Organizational communication is an essential tool for performance management (Wang & Liu, 2009: 209). It takes on a higher importance in more complicated workplaces (Marquese, 2010: 47). The interruption might originate from either the main components of communication (message source, encoding and decoding the message, Interpretation; message taker and the feedback) or probable noise on the message. Communication obstacles have been studied from the viewpoint of different researchers. Each

researcher has discovered a few obstacles. Their studies would provide readers with a better insight about the issue. For example, some academics investigated factors while others looked into components and their indicators. The type of obstacles is another important issue. Some notable studies are mentioned below:

Louise Boone believes communication obstacles originate from incorrect schedule, insufficient information, inappropriate channel, perceptual selection, inaccurate assessment, excitements and beliefs (Boone, 1992: 308). Pardakhtchi holds that lack of planning in communication, control area, uncertainty in everybody's duties and responsibilities, human barriers, perceptual selection, obstacles caused by noise, technical barriers, age incoherence and obstacles caused by distance and geographical barriers are the most important communication obstructers (Pardakhtchi, 1994: 23). Eisenberg divided communication barriers into four category which (called noise) are process barriers, physical barriers, semantic barriers, and psychosocial barriers (Eisenberg, 2010). Abdin considers misunderstanding, lack of feedback and biased judgment to be among the barriers of communication (Abdin, 2008: 2-4). Stephen Robbins, a behavioral scientist, believes emotions and non-verbal relations, gender and language qualities and personality traits could function as communication barriers (Robbins, 2008). According to Falahati's research, the managers and employees in his statistical population maintain that human factors are major obstacles, while they believe technical factors are the least important (Falahati, 2005: 23). Also Champoux (2011) Mentioned different types of communication barriers in organization which are selective perception, semantic problems, message distortion, message filtration, information overload, message timing, organizational silence (Champoux, 2011). Others consider the following factors to be communication barriers: distorted messages, weak listeners, technical problems, problems between bureaus, meaning and expression and communication filters (Travta & Newport, 1995). Irannejad thinks these are the main communication obstacles: lack of planning for communication, barriers considering noise (inappropriate channels, inadequate information, physical interruptions, organizational structure) and barriers due to the meaning of words and phrases (Irannejad & Sasan Gohar, 1994). Also Mirspasi believes the following are the major obstacles to communication: cognitive barriers, human barriers, organizational barriers, technical barriers, inner-self barriers, inter-personal barriers, structural obstacles and psychological barriers (Mirspasi, 1996: 414-416).

Organizational barriers are the causes, basis's and problems that put the organization at risk of crisis and hinder the organization from healthy growth. The phenomenon of organization and management can be analyzed based on three factors: behavioral, structural and contextual. The behavioral factors (content) are all factors related to human resources which create the content of the organization such as motivation, morale and job satisfaction; Structural factors include series of systematic relations governing the internal components of the organization that make up the body of the organization such as organizational structure, rules and regulations; And finally contextual factors, including environmental and external conditions that affect behavioral and structural factors (Mirzai, 2000: 316). Three branches model has three dimensions: structural, contextual and behavioral. This model is named because of the relationship among structural factors, behavioral and context in a way that no event can be done outside of the interaction of these three branches. In fact, the relationship between these three branches is so close and unbreakable in practice. Distinguish and recognize these three aspects are purely theoretical and this concept created to analyze phenomena in a precise manner (Dehgan, Talebi, & Arabioon, 2013). According to our three-branched pattern, we can group all mentioned barriers into structural elements (lack of feedback, absence of planning in communication, control area, ambiguity of duties and responsibilities, obstacles caused by distance or geographical barriers, etc.), behavioral elements (incorrect schedule, perceptual selection, immature assessment, excitements and beliefs, human barriers, perceptual barriers (cognitive), etc.) and contextual elements (inappropriate channel, obstacles caused by noise, technical barriers, cultural values, etc.). In this part of the study, we formulate the behavioral, structural and contextual components through consulting communication experts. The components include all obstacles of literature review and previous researches. For this reason and based on the types of obstacles, we categorized structural components into complexity, formality and centralization and organizational inflexibility behavioral components into human barriers and perceptual barriers and contextual components into cultural barriers, technical barriers and barriers caused by work atmosphere.

3. Conceptual model of the study

In this research, pathology of organizational communication studied via a three-branch mechanism. The reason we call it "three-branch" is that the structural, behavioral and contextual relations are so firm that no event or phenomenon can ever exist outside the interactions of the channels. In other words, the relations are closely connected and inseparable; they are interdependent- like three branches grown from the main stem of organizational life (Mirzai, 2000: 317). In this research, we first grouped available factors into structural, behavioral and contextual components, based on the findings of previous researches and study of literature review.

3.1. Structural dimension

In order to formulate structural factors, we used Robbins' pattern. Robbins has come up with three elements: formalization, complexity and centralization. In this study in order to complete them and based on the type of indicators of structural factors, we added "flexibility" to the mentioned elements:

3.1.1. Problems due to complexity

It refers to the minor tasks and systems in an organization. It includes both organizational layers (vertical) and administrative divisions and offices (horizontal). The point is the more complex an organization, the more difficult its design and interpersonal relations would be, due to the lack of a common language. Such factors as long hierarchy, control area, increasing specialization and differentiation of jobs and geographical distribution can impact the effectiveness of a communicative structure.

3.1.2. Problems due to formality

It refers to the extend we introduce regulations, procedures, working principles and job descriptions. Formality causes a decrease in employees' decision making and innovation (Robbins, 2008). Too much emphasis on formal communication, too much emphasis on informal communication, ambiguity in regulations and working principles and uncertainty in duties and responsibilities are the factors that can influence the effectiveness of a communication system.

3.1.3. Problems due to centralization

It refers to organizational levels and decision-making centers. Therefore when a high level management board makes a decision, we have a centralized system and when decision making is assigned to lower-level departments, we have a decentralized system. Placing much emphasis on centralization results in employees' dependence on high levels of the organization and forming a one-way communication. This is an obstacle to communication development.

3.1.4. Problems due to inflexibility

Scholars think our current management atmosphere is unstable and believe employees must adapt to constant change in their workplace (Rezaeian, 2009: 453). Because facilitation of communication is one of the functions of designing organizational structure, inflexibility and consequently failing to design new structure for an organization, prevents effective communication. Table 1 summarizes an analytic pattern for structural barrier.

Table 1 – Summary of analytic pattern for structural barriers.

Dimensions	Components	Factors	Indexes	Theorists
Identifying communication barriers on the basis of structural branch	Problems due to Centralization	Problems due to decision-making	Lack of delegating problems to the responsible ones Lack of opportunity to participate and make decisions	Pardakhtchi (1994)
	Problems due to Complexity	Long hierarchy Control area Increasing specialization and differentiation of jobs Geographical distribution	Conveying messages and reports through long hierarchal ranks Broad area of control and supervision on employees by managers Extensive specialization and comprehensive differentiation of jobs Longa distance between the departments of an organization	Pardakhtchi (1994)
	Problems due to Formality	Strong emphasis on informal communication Strong emphasis on formal communication Lack of clear guidelines and regulations Lack of clear roles and responsibilities	Lack of emphasis on the facilitating role of informal communication by organization managers Strict and excessive regulation pertaining to the way of communication ambiguity in regulations and working principles of the organization in relation to other departments Lack of regulatory requirements and needed instruction. Ambiguity in duties and responsibilities of the organization positions	Pardakhtchi (1994) Davis (1953)
	Problems due to Inflexibility	Structural inflexibility	Increasing emphasis on drawing exact borders between departments of the organization	Pardakhtchi (1994) Davis (1953)

3.2. Behavioral dimension

In behavioral area, human beings and their behaviors are considered. Behavioral barriers are often grouped into those concerning human qualities and those concerning human perception. According to literature review and previous researches, perception is the process of attaching meaning to peripheral phenomena. Naturally, the process occurs on the basis of a system of beliefs, values, and knowledge acquired by people. Accordingly, perception might lead to a communication barrier because of differences in aforementioned subjects. The following factors are assessed in the domain of the behavioral area of organizational communication barriers:

3.2.1. Human barriers

The differences of inherent and acquired qualities between two people are among their communication barriers. The bigger the differences are, the harder communication becomes, thereby increasing the chance of misunderstanding (Pardakhtchi, 1994: 18). Factors studied in this category are: differences in imagery and perception, differences in characteristics of emotion, different interpretation of the meaning of words, the impact of nonverbal communication, differences in information and science. Obviously a difference in any of the mentioned factors causes different understanding of a sentence and decreases effectiveness of communication.

3.2.2. Perceptual barriers

There is a complicated relation between perception and communication. Our perception of a phenomenon is not only shaped by the way we look at it, but also by the way our thoughts form a meaningful connection with respect to the phenomenon; in other words, people reject or misunderstand those messages that do not match their expectations (Pardakhtchi, 1994: 20). The factors in this category are projection, perceptual defense, stereotypical thinking and a halo effect. Table 2 summarizes an analytic pattern for behavioral barriers.

Table 2 – Summary of an analytic pattern for behavioral barriers.

Dimensions	Components	Factors	Indexes	Theorists
Identifying communication barriers based on behavioral branch	Human barriers	Differences in imagery and perception Differences in emotional characteristics Different interpretation of meaning of words The impact of nonverbal communication Differences in information, science and knowledge	Different perception and understanding of the work affairs by individuals Employees' indifference toward the emotions and feelings of each other in conveying messages and reports Lack of empathy and understanding the feelings of employees by their colleagues Applying ambiguous phrases for passing on messages Lack of using effective nonverbal communication (gestures, body movements, etc.) for conveying oral messages Differences in information and knowledge of your colleagues in the organization	Boone (1992) Pardakhtchi (1994) Rezaeian (2007) Robbins (2008) Abdin (2008) Irannejad and Sasan Gohar (1994) Falahati (2005)
	Perceptual barriers	Projection Perceptual defense Stereotypical thinking A halo effect	Employees' tendency to generalize their own characteristics to others Employees' tendency to receive favorable messages and orders while avoiding threatening messages Holding an assumption based on the existence of similar traits among the members of a group of employees Employees' tendency to judge about their colleagues merely based on a specific feature	Boone (1992) Pardakhtchi (1994) Rezaeian (2007) Robbins (2008) Mushtaq (2011)

3.3. Contextual dimension

According to available literature, contextual branch often refers to the environment in which communication happens. We can group contextual branch into different categories. Some barriers are caused by dominant culture. Companies are usually multicultural institutes where different task areas in organization or different culture of employees may result in different cultures. Malfunctioning communication tools and the Barriers Caused by Workplace are among other contextual barriers.

3.3.1. Cultural barriers

Many experts believe culture in an organization is the employees' common understanding of the organization. This triggers the recognition of distinction between two organizations. If employees' common values are different from the culture that brings about benefit in an organization, the result would appear as a liability on the balance sheet of the company (Robbins, 2008: 372-278). The factors in this category are: the difference between faith and belief in the vision, the difference between the shared values of the organization, language and meaning, organizational rumors, different organizational situations, age difference and gender difference.

3.3.2. Technical barriers

Managers have long been eager to discover and compare the effectiveness of different communication tools (Argenti, 2005: 15). The factors in this category are: Lack of interaction network, pool of information, lack of feedback, and lack of storage and communication lines, communication location, and inadequacy of information, inadequacy of equipment and communication facilities.

3.3.3. Barriers due to workplace

Inopportune time for communication, inadequate or inappropriate information and physical disturbances like telephone ringing or increased information, are among the factors that prevent effective communication (Irannejad & Sasan Gohar, 1994: 361-365). The factors in this category are: inappropriate workplace, insufficient information and physical disturbance. Table 3 summarizes an analytic pattern for barriers caused by workplace.

The structural, behavioral and contextual aspects mentioned before, have elements that prevent an effective organization communication. The elements and barriers are already shown in Fig. 1. Accordingly, a conceptual model of the research is drawn here:

3.4. The hypotheses

H1. Organizational communication in National Iranian Oil Products Distribution Company is faced with structural barriers (centralization, complexity, formality and inflexibility).

H2. Organizational communication in National Iranian Oil Products Distribution Company is faced with behavioral barriers (human and perceptual barriers).

H3. Organizational communication in National Iranian Oil Products Distribution Company is faced with contextual barriers (barriers caused by workplace, technical barriers, and cultural barriers).

4. Method of research and research tools

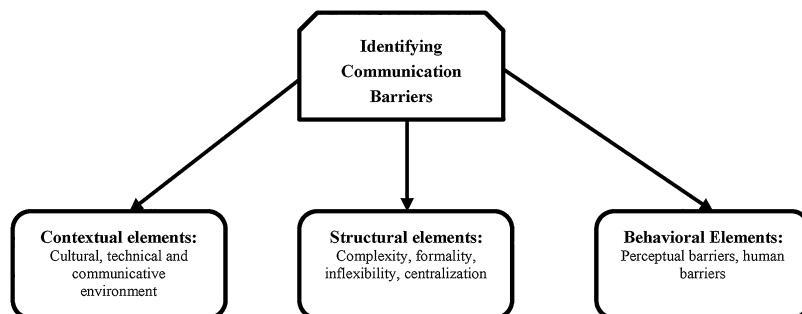
We used descriptive, survey method of research. The instrument of the survey is a researcher-made questionnaire. The field research work was done as follows:

1. Indexes of communication barriers were gathered from previous studies and literature review.
2. Based on the barriers, the components and related factors were formulated and they were validated by the experts.
3. A questionnaire was designed and distributed after the approval of experts.

NIOC is one of the biggest companies in the country and lots of people work directly for this company; for this reason communication and coordination all of these staff needs very high attention however there is no amount of attention that would avoid conflict or misunderstanding in a field of communication. Because of these reasons NIOC selected for conducting this survey. The questionnaire consists of 42 questions developed in line with Likert Spectrum. The statistical population includes 567 people from among managers, supervisors and specialists. 230 people were selected for sampling, 240 questionnaires were distributed in the headquarters of National Iranian Oil Products Distribution Company in Tehran because all personnel firm different level were accessible and got different viewpoint from various level of organization. 200 valid questionnaires were

Table 3 – Summary of an analytic pattern for barriers caused by workplace.

Dimension	Components	Factors	Indexes	Theorists
Identifying communication barriers based on contextual branch	Barriers due to workplace	Inappropriate work-place. Physical disturbance.	Too much noise while trying to communicate with others. Inappropriate workplace (in terms of heat or coldness) which can impact communication.	Boone (1992) Pardakhtchi (1994)
	Technical barriers	Lack of a reciprocal network. Inadequate equipment and communication facilities. Too much information. Lack of feedback. Lack of storage and communication lines. Inadequacy of information. Inappropriate time.	Lack of a bilateral network to communicate with managers. Shortage of communication equipment, i.e. telephone, fax, etc. Too much information which turns to become a barrier to proper decision-making. Lack of a feedback mechanism or culture to learn about the effectiveness of the messages sent to the audience. Irresponsibility or indifference to the safety of communication tools. Physical limits of workplace (place, condition of the building) Presence of too many employees in a limited area of the workplace. Old information and failing to get updates. Lack of access to necessary information on time.	Boone (1992) Abdin (2008) Pardakhtchi (1994) Mirspasi (1998) Alikhani (1995) Mahdavi and Tab (2007) Travta and Newport (1995) Kowalski and Swanson (2005)
	Cultural barriers	Difference in faith and belief. Different in shared values of the organization. Language and meaning. Organizational rumors. Different organizational situations. Age difference. Gender difference.	Employees' differences in faiths and beliefs. Lack of common organizational values among employees. Diversity of cultures and nationalities. Culture of rumor-fueling in which rumors go around in critical moments. Too much emphasis on administrative positions. Difficulty in having communication with people of different ages. Difficulty in having communication with people of opposite sex.	Pardakhtchi (1994) Rezaeian (2007) Robbins (2008) Davis (1953) Travta and Newport (1995) Horwitz, Bravington, and Silvis (2006)

**Fig. 1 – Conceptual model of communication obstacles in an organization.**

given back by 170 specialists, 26 supervisors and 6 director generals. In order to evaluate the hypotheses we used the following tests: Kolmogorov-Smirnov test to confirm the normality of the data, one sample T-test to prioritize the barriers, and Analysis of Variance Test. To assess validity and reliability of the research tool, we both employed a convergent validity and asked for experts' opinion. The data on the validity and reliability of research tool is presented in Table 4.

Table 4 – Validity and reliability of research tool.

Element	AVE	Cronbach's alpha	Mean
1– Problems caused by decision-making	0.66	.791	3.446
2– Problems caused by complexity	.43	.804	2.919
3– Problems caused by formality	.51	.751	3.278
4– Problems caused by inflexibility	.52	.731	3.093
5– Human barriers	.54	.712	3.293
6– Perceptual barriers	.57	.762	3.464
7– Contextual barriers	.49	.734	3.157
8– Technical barriers	.52	.805	3.84
9– Cultural barriers	.57	.780	3.273

Table 4 shows the average deviation, standard deviation and average variance of the research factors. In order to determine a convergent validity, Cornell and Larcker recommend Average Variance Extracted index, this is available in Table 4. When AVE is at least 40%, the relevant indexes are significantly convergent, so the convergences of all indexes are confirmed. The highest value (66%) belongs to “problems caused by decision-making” and the lowest value (43%) belongs to “problems caused by complexity”. In one column, the values of Cronbach's alpha for the variables in this research have been calculated. All figures are above 70%, so the reliability of the questionnaire is assured. The last column shows the mean for each variable. We can obtain the state of each variable in our statistical population by studying its mean. All the figures are above 3, which denote all variables are favorable in our population. The most unfavorable condition belongs to problems caused by complexity and the most favorable condition belongs to problems caused by decision-making.

5. Research findings

5.1. Kolmogorov-Smirnov test

In order to examine the normality of the research variables, the Kolmogorov-Smirnov test was applied. Null hypothesis (H_0) is based on the normality of the data and the Alternative hypothesis (H_1) is based on the lack of normality of the data. Table 5 shows the results of Kolmogorov-Smirnov test.

In this test, whenever the level of significance (sig) becomes lower than 0.05, the H_0 is rejected and one cannot accept the normal distribution of the data in the given confidence limits. Since the level of significance for all of the variables is more than the error level of 0.05, therefore the H_0 will be resulted, i.e. all of the research variables are normal.

5.2. Research hypotheses

All of the hypotheses have been tested in Table 6. Null hypotheses as well as the alternative hypotheses are observed for all of them. Table 6 shows the results of one-sample T-test.

Given the fact that the amount of T Statistic is within the scope of H_0 rejection for all elements, except for problems caused by complexity and inflexibility, we can conclude that the amount of T is more than 1.96 and its level of significance is less than 5%. In other words, the mean of the scores tend to be higher than three in all of the elements, with the exception of the problems due to complexity and inflexibility. Therefore, all of the elements apart from the aforementioned factors are among the barriers of organizational communication in National Iranian Oil Products Distribution Company. In the second phase, the difference in the

Table 5 – The results of Kolmogorov-Smirnov test.

Research variables	Z statistic	P-value	Result
Problems caused by decision-making	1.101	.269	Normal
Problems due to complexity	.833	.491	Normal
Problems due to formality	.848	.468	Normal
Problems due to organizational inflexibility	1.097	.264	Normal
Human barriers	.998	.272	Normal
Perceptual barriers	.774	.587	Normal
Barriers resulted from communicative environment	1.072	.261	Normal
Technical barriers	.661	.775	Normal
Cultural barriers	1.015	.254	Normal

Table 6 – Results of one-sample T-test.

Element	Mean	Error	T statistic	Sig	Result of H1
Problems due to decision-making	3.446	.072	6.139	.001	Accepted
Problems due to complexity	2.919	.046	-1.716	.0999	Rejected
Problems due to formality	3.278	.059	4.697	.001	Accepted
Problems due to organizational inflexibility	3.093	.075	1.248	.428	Rejected
Human barriers	3.293	.0561	5.220	.001	Accepted
Perceptual barriers	3.464	.0478	9.691	.001	Accepted
Barriers resulted from communicative environment	3.157	.067	2.332	.042	Accepted
Technical barriers	3.184	.057	3.236	.001	Accepted
Cultural barriers	3.273	.061	4.483	.001	Accepted

vulnerability of the organizational communication within the scope of behavioral, structural and contextual elements will be analyzed. Accordingly, the statistical hypothesis is stated as:

H0. Organizational Communications have similar level of vulnerability in the triad elements of behavioral, structural and contextual dimensions.

H1. At least one pair of the triad elements of behavioral, structural and contextual dimensions has different level of vulnerability.

Table 7 shows the results of the Levene's test for analyzing the equality of variances. If the Mean of K is the base of comparison, null hypothesis and alternative hypothesis can be formulated in the following way:

Level of significance has been less than five for the variance analysis test. Thus, at least one pair of the level of vulnerability has a different significance. The results of Levene's test show that the variances of each element do not pose a significant difference as well and applying variance analysis test is permissible. In order to examine and compare the dimensions two by two, the two-sample K-S test is applied. The results of this test are summarized in the following table. The results suggest that in a 95% confidence level, there is not a significant difference between the vulnerability of structural and contextual elements. The highest level of vulnerability relates to the structural element and the lowest to behavioral element. Table 8 shows the results of two-sample K-S test to compare two samples.

6. Discussion of findings

With respect to the variables of the hypotheses and the average number concerning structural elements, we come to the conclusion that the headquarters of National Iranian Oil Products Distribution Company is faced with barriers as far as the structural elements of organizational communication are concerned. In addition, we studied the issue with respect to problems caused by centralization, formality, complexity and inflexibility. As a result, we found that centralization plays a dominant role in this case. On the other hand, problems due to complexity and inflexibility have minor roles.

The average number calculated for contextual elements shows that these elements also have a significant role in creating barriers to communication. The study of contextual elements proved that cultural factors have the most important and noise has the least important role in building barriers to communication.

Table 7 – Results of the Levene's test for analyzing the equality of variances.

Level of significance	Levene statistic	Level of significance	F statistic
0.289	1.244	0.007	5.066

Table 8 – Results of two-sample K-S test to compare two samples.

Dimensions	Sub-group for an error of 5%		Sample size
	Mean	Mean	
Behavioral	3.186		200
Contextual	3.205		200
Structural		3.378	200
Level of significance	.957	1.000	

The average number calculated for behavioral elements prove that perceptual barriers are the most important ones to prevent effective communication.

After studying the differences among contextual, behavioral and structural barriers, it was revealed that when confidence level is 95%, there is no significant difference between the level of vulnerability of contextual barriers and behavioral barriers. Structural barriers are most likely and behavioral barriers are least likely to be faced.

7. Conclusions and suggestions

Most studies on organizational communication focused on different types of communications in organization and its effect in different variables of organization. In contrast the present study examined the pathology of organizational communication by using three branches model in NIOC which is the most strategic company with lots of subcategory in whole country. The size of company makes communication even more crucial for this company. In the following there are several suggestions to overcome barriers according to the model of study.

7.1. Suggestions for the removal of structural obstacles

Although problems caused by structural complexity and inflexibility, according to [Table 1](#), are among communicational obstacles, the present research does not consider them as communicational problems in National Iranian Oil Products Distribution Company. In addition, findings of the present study concerning problems caused by decision making and formality are in line with the results of studied conducted by the authors whose names are mentioned in [Table 1](#).

Delegation of authority makes staff more involved in developing and implementing plans. The basis of this idea is simple; the more our decisions makers are close to the place for which a decision is made, the more realistic our decision will be.

Those who have experienced working in highly formal context are more responsible than those without such an experience. Systems of the communication management ought to be designed in a way the communicational needs of specialists and managers are met without any personal bias or inclination.

Rules and regulations of correspondence should be revised. Specialist groups with sufficient authority must be used in different departments and more flexible structural organizations have to be established to meet future challenges.

A sufficient system of sharing news and information about advancements in career, needs, goals and policies of the company, etc. should be devised.

Because of the task-based structure of the organization, different departments are not so cooperative toward each other. Sections of the organization are only occupied with their own tasks and would not consider working together. NIOPDC management ought to apply methods of increasing cooperation among departments.

It is necessary to set up flexible communication networks in proportion to potentials of personnel and available equipment in any period of time. One could not suffice to one communication network in all times. Different contexts require different means of communications.

Disagreement between processes on the one hand and modern technology and variable external environments on the other is a real obstacle. New technology evolves every day. The management can acquire a collection of the technologies to avoid these obstacles.

7.2. Suggestions for removal of behavioral obstacles

The findings of the present research in the field of behavioral obstacles are in line with those of the authors whose names are mentioned in [Table 2](#). Therefore, the following suggestions are worth noting:

Tolerance should be promoted in communication via sensitivity teaching in special classes.

An integrated system of sharing internal news and information should be established through electronic or non-electronic news letters and SMS.

Employees and managers ought to avoid bias against or in favor of people, jobs, organizations, plans, etc.

Employees' knowledge of the limits of cognitive tools (sensation and cognition errors) should be advanced.

Religious teachings should be used to prevent halo effects like false prejudgment, whim, ignorance, prejudice, blind imitation, selfishness and stubborn pride.

Verbal communication accounts for a major portion of communication between a manager and an employee. Ineffective verbal communication is the primary cause of organizational problems, poor morale and communicational obstacles.

Understanding each other's emotions and empathy results in a more effective communication between managers and employees.

In order to establish good communication between managers and employees, message should be laid out carefully, conveyed briefly, and delivered clearly.

7.3. Suggestions for removal of context obstacles

The findings of the present research are in line with those of the authors whose names are mentioned in Table 3. Therefore, the following suggestions are worth noting:

Older employees have better communication with managers. Younger workers should be given a chance of cooperation in communications.

Since higher ranking employees need to communicate more information, the organization should pave the way for more effective communication, by various means, between managers and employees as well as among employees themselves.

Giving employees timely feedbacks on their accomplishments is one of the best ways to improve communication skills.

Integration of communication systems in an organization is deeply significant. There are different communication systems in NIOPDC. Each of the system uses a separate data bank. They are not linked to similar data banks of other oil companies.

Old and outdated computer systems have helped employees turn to traditional handwritten-based systems. Even if modern communication software is acquired in NIOPDC, it could not be installed on many of the computers.

Managers whose tables are so disorganized either are unaware of time management or want to show that they are too busy. In this way, they set a pattern for employees to work less and show they are too busy.

8. Limitation

All research contains limitations. In this study, due to the size of the NIOC sampling and analyzing collected data took place just in small part of the company and the result reflected only the perception of those who participated in this study and for much more valid result there is a need for organization wide research. Another pitfall in conducting this research is the method of collecting data, employees do not want to share bade image of their organization and always try to give acceptable answers. Maybe using other date collecting method like interviews and observation would give exact information in compare to questionnaire. Also high level mangers due to the busy work schedule are not very eager to participate in this survey.

Finally the last limitation is the method of analyzing date, hierarchical fuzzy model would be helpful in matter of ranking various factors and the result is more tangible.

Conflict of interest

It is stated that this research was purely conducted for academic purposes. There is no role of any organization or sponsor in the study design, in the data collection process, analysis of the study and interpretation of the data. The conclusions are solely made on the basis of the collected data.

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