

Organizational Silence, from Roots to Solutions: A Case Study in Iran Petroleum Industry

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Abstract

Organizational silence is defined as the lack of effective interactions among staff and it stands opposite to the concept of organizational voice. In the present research, the purpose is to measure the silence behavior among the Research Institute of Petroleum Industry (RIPI) staff before and after the implementation of a comprehensive suggestion system. A suggestion system is an internal structure easily accessed by all the staff to state their suggestions in a pre-structured format. The roots of silence behavior are studied based on a deep literature review to find out possible solutions to improve organizational voice. To conduct the research, a self-structured questionnaire has been developed and distributed among all the staff. A quasi-experimental methodology has been adopted to compare pre-test and post-test results of silence status before and after implementing the suggestion system. The results show that the silence behavior has been meaningfully reduced. This is based on a simple *t*-test performed by SPSS software, where there is a meaningful difference between the silence status of pre-test and post-test. In other words, a suggestion system could be a communication opportunity to encourage staff to provide suggestions and to cooperate for promoting the organization, which will finally reduce the organization silence. A major gap within the studies of Iranian scholars about organizational silence is the failure to introduce effective solutions to reduce it. However, this research is innovative in the sense that it fills the mentioned gap. This research shows that large scale organizations like RIPI need to consider methods like suggestion systems to break bureaucratic obstacles so that their staff can easily find open routes to share their ideas and suggestions in a pre-structured format. This cooperating will lead to mutual benefits for both parts, since suggestions could be used to enhance organizational structure and performance and the staff could also witness their impact on organizational improvements.

Keywords: Organizational Silence, Organizational Voice, Suggestion System, Research Institute of Petroleum Industry

1. Introduction

In the Persian language literature, silence indicates an individual's high degree of personality, as poets have even blamed voluble people and have considered being silent as a value. But in today's organizational fundamentals, this attitude has changed as organizations change rapidly in a natural response to economic and environmental circumstances (Quinn and Spreitzer, 1997). Organizations are now required to cooperate with employees more than before. The rapid change in organizations

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enables them to adapt to new conditions and to solve problems more successfully. As a result of this approach, superior managers would be able to obtain the best suggestions about their problems from the lower levels of organizations as their employees are tangibly involved in most of those problems.

If managers recognize the need for cooperation at all organization levels, it will be possible to make use of the defined strategies to promote the level of organizational voice. That is, efficient cooperation in an organization is a concept against the organizational silence. Using suggestion systems is one of these strategies, a purposeful method for elevating the level of providing useful opinions about organization problems by staff members. Employees, through this system, will be able to openly provide their suggestions for promoting their own workplace and their organization. In response to this cooperation, organizations acknowledge accepted suggestions with rewards. These rewards work as a compensation and are classified into intrinsic and extrinsic. Extrinsic rewards can be controlled by managers, but intrinsic ones are created by the motivation and cooperating in organizational decision makings.

Employees generally deal with various problems related to different parts of their organization. In response to these problems, employees choose to be silent or have an organizational voice (Milliken and Morrison, 2003). Organizational voice means stating suggestions about the existing problems and silence means the lack of efficiently expressing opinions. In a large number of organizations, organizational silence exists due to many various reasons. Milliken and Morrison (2003), as the founders of modern research on organizational silence, were the first to investigate the fundamental reasons behind organizational silence. They presented a fundamental model following an exploratory qualitative study at the New York University. In their model, they described causes of organizational silence in three dimensions, namely *individual traits*, *organizational traits*, and *relationship with supervisors*. Their model has been used as a basis for further research on the concept of organizational silence. Regardless of the comprehensive model presented, each organization should measure the reasons behind its organizational silence based on its own atmosphere and culture. Based on research carried out in this regard, the roots of silence lie in the invisible relationships between the organization and its employees. Basically, any organization has its own atmosphere and culture, which affect the relationships among individuals. Therefore, organizations have obviously their own specific problems. This is why organizational research is necessary to define and clarify the specific concepts of human resource within every organization.

RIPi, as one of the most important research and technology organizations in Iran using elite human resources, needs to determine its own organizational voice level and to find the roots of any silence behavior. For this purpose, superior managers have worked out and implemented a suggestion system as a key tool to increase interaction with employees as well as to take advantage of their suggestions in achieving organizational goals. In this regard, the level of organizational silence has been evaluated before and after adopting this tool. The present research aims to study the results obtained through the implementation of the suggestion system. It focuses on the concept of organizational silence, looks for its roots, and suggests strategies to solve it.

In this paper, the most important achievements in research on silence and other influencing parameters were reviewed to reach our main hypothesizes. Moreover, Iranian scholars' studies were studied to find out the roots of the problems and the solutions they provided for Iranian organization. Then, they were compared with international studies to find out the main gap of silence literature between the two. We have also explained our quasi-experimental methodology, designed and started 6 months before running the suggestion system, to find out the silence status before and after the

implementation of the suggestion system. The results of pre-test and post-test were gathered and compared to find out if a meaningful change existed. Based on the results, conclusions were drawn about the silence behavior, and the roots and reasons behind the silence were found out according to the related literature. Comprehensive solutions were proposed for organizations like RIPI to solve their silence problems, and the question whether running a suggestion system is a good method for increasing voice was answered. Finally, some suggestions were offered for further research on silence behavior.

In following sections, the literature about silence, voice, and suggestion systems in the national and international works is reviewed and the existing gap is discussed. In the research methodology section, we delineate our model to execute a suggestion system as a silence breaking structure. The analysis, questionnaire, and the results of the *t*-paired test are presented in the results section. In the final section, the results and the solutions developed for the silence behavior problem in Iranian organizations like RIPI are addressed. Some new suggestions for Iranian organizations to use suggestion systems as well as further research topics about silence are also proposed.

The main question of this paper is to investigate the relationship between suggestion system implementation and the silence behavior among RIPI employees. This question leads to H_0 (Null Hypothesis)

“Q1: Is there a meaningful relationship between suggestion system implementation and silence decrease.”

2. Literature review

The concept of organizational silence was first introduced in 1980s in the theories of administrative justice, which had been formed following the ethical and administrative scandals happened at that time. Morrison and Milliken (2000) have discussed this concept as the modern organizational silence and have drawn the attention of organization researchers to a modern form (Bogosian, 2012). They could finally provide a comprehensive model to discuss silence in modern management literature, which was afterwards used as the best model in other scholar's research and has still remained as the most comprehensive model.

Morrison and Milliken (2000) have stated that silence in organizations is a collective-oriented phenomenon. As the majority of the organization members do not tend to negatively comment, the silence would become a collective-oriented phenomenon. The fact that the organizational silence is not counted as an individual-oriented phenomenon indicates that the silence does not mean an individual's feedback in the organization, but it is a collective movement by a group of employees who are silent. Therefore, the silence atmosphere in the organization may result in adverse organizational performance. In fact, the increasing impact of the silence originates from the collective silence within the organization. In other words, it can be stated that silence might be like a contagious virus as it can be transferred from an individual to another. As stated by Bowen and Blackmon (2003), it can be transferred from a subject to another one. Consequently, silence on one issue may lead to silence on another issue too. When interacting with others, silence, which is due to deliberately maintaining information, may lead to the reduction of relationships and trust among individuals (Milliken and Morison, 2003). Trust itself is one of the major components of social capital, the reduction of which causes a decrease in the organization's social capital. In other words, there is a close relationship between the roots of silence and the social capital (Milliken and Morison, 2003).

Milliken et al. (2003) have proposed a model for the appearance of silence in organizations. They have studied the phenomenon that someone's choice to be silent within an organization can be seen in three dimensions: *individual traits*, *organizational traits*, and *relationship with supervisors*. Shortage of experience or the individual's low position in the organization is counted as "*individual traits*"; the hierarchical structure existing in the organization and cultural roots are viewed as "*organizational traits*"; and the lack of close relationships with a supervisor or a supervisor's superiors is considered as factors related to "*relationship with supervisor*". Based on this classification, scholars have formed two separate viewpoints on the appearance of silence. According to the first viewpoint, personnel might think that breaking the silence ends in a negative attitude towards themselves or their colleagues. Based on the second viewpoint, personnel imagine that their opinions do not lead to an effective change. In both viewpoints, personnel decide to be silent. In their research, Milliken et al. (2003) have found the roots of these two viewpoints in the social capital. They have concluded that factors such as low trust, weak social relationships, weak collaborations, weakness in performance, and the possibility of jeopardizing promotion chances all originate from several dimensions of social capital. They are considered to be the roots of the silence phenomenon.

The term "organizational voice", which means stating effective opinions and ideas, is discussed as opposite to the phrase "organizational silence". Organizational silence occurs when organizational voice does not exist (Brinsfield et al., 2009). In other words, when the down-top relationship weakens in the organization, organizational voice would be undermined too and organizational silence would replace it. In a model on the classification of employee's silence and voice and their behavior towards them, proposed by Van Dyne et al. (2003), three classes were considered. According to their model, employees show three types of behavior as follows:

1. They are in the passivity mood (aloof mood), in which they imagine that stating their opinions is not useful and accept the status quo;
2. They are in the conservative mood (self-protected mood), in which they fear to state their opinions; and,
3. They are in the active mood, in which they are active and state their opinions.

Based on the aforementioned three moods, there will be three types of silence. A silence resulted from the imagination that breaking the silence will end to no result is categorized as "*obedient silence*", which is originated from fear and risk. The second one is "*defensive silence*", which is resulted from trying to maintain confidential information; and the third one is "*altruistic silence*" which is resulted from maintaining valuable information. According to this classification, three types of organizational voice are also created. First, a voice which is towards apparent support but based on passivity. The second originates from fear, in which the individual tries to draw attentions to something else. Finally, the third is an organizational voice in which efficient solutions to the organization's actual problems are stated. In the present research, what is referred to as voice is the third type of the mentioned categories, and what is referred to as silence is the first and second type of the above-mentioned categories.

In the models proposed before Morrison and Milliken (2000), more fundamental concepts around silence had been stated. All of the models presented after Morrison and Milliken, proposed in the years after the end of twentieth century, have used and combined these models. Argyris (1977) considers silence as originated from current defensive routines and strong norms in the organization, which prevents employees from stating their opinions easily. In other words, he considers silence as the result of policy-making and micro-cultures, which have been created due to the superior and

middle manager's behavior within the organization. This idea has been also supported by the model presented by Vakola and Bouradas (2005). In their model, which is also used as a basis for our present research, they have considered three factors, namely superior manager's attitude towards the organization's silence, supervisor's attitude, and opportunities for making relationships. In other words, they accept the idea that organizational silence originates from the higher levels of the organization. This idea is also supported by Milliken and Morrison (2003). They consider manager's fear of employee's negative feedback, manager's image in their mind of lazy employees, which is the same as X-McGregor theory, and the organizational culture as the roots of organizational silence. Among the other theories, Izraeli and Jack (1986) consider inducing employees to accept the belief that they have no volition or potential to make a better comment as the root of silence. Even managers may apparently favor receiving suggestions from their employees, but in practice, force them to be silent (Hennestad, 1990). As a result of such an approach, employees retreat so as not to be placed in the group of "problem-causing individuals" and will not state their opinions (Dickson and Roethlisberger, 1966). The reason behind this is the *Mum effect* phenomenon, which was first introduced in the field of organizational silence by Morrison and Milliken (2003). In other words, an individual does not like to bring bad news.

Milliken and Morrison (2003) proposed several reasons behind the silence in organizations such as employee's fear of manager's negative reaction and relations structure between supervisors and employees in the organization so that individuals do not like to give negative information to their supervisors. However, managers are not the only main guilty side. As stated by Bowen and Blackmon (2003), support from others may lead to organizational voice. It can be concluded that support from colleagues and group-mates is also effective in deciding by employees to be silent or to state their own opinions. This logic can also be seen in the earlier viewpoints such as those proposed by Janis (1982) and Noelle-Neumann (1974). According to their idea, support from colleagues and imagination are also highly effective in stating suggestions. In a fundamental viewpoint on defining silence suggested by Noelle and Neumann (1993), the model "*Spiral of Silence*" has been stated as the fundamental reason for silence. When an individual sees himself in the minority, he does not feel the required support and becomes silent. In fact, he succumbs to the group as a whole. This theory has later been completed by Morrison and Milliken (2000). They also identified silence as a collective-oriented phenomenon. However, this approach had previously been proposed by Solomon Ash in 1950 (Capanzano, 2012). He considered imitating other members of a group as the dominant reason behind wrong suggestions. He discussed conformity and pressure from colleagues, which later became very effective factors in the field of organizational behavior and the analysis of group behavior.

Based on the viewpoint on supporting the position of the opinion-stating individual, there are two major types in several studies about organizations. The first is when an issue or problem is discussed amongst colleagues and it is not referred to the boss, as stated by Morrison and Milliken (2003). In the second, the case is referred to none of the bosses and colleagues, as stated by Bowen and Blackmon (2003). Based on this classification, it is possible to enter psychological issues through the concepts such as being valuable or safety feeling (Morrison and Milliken, 2003).

Milliken and Morrison (2003) have counted social capital, culture, and the type of relationships as concepts related to psychology, and the type of attitudes as the root factor in several studies. In other words, various factors are involved in the occurrence of silence. This variety of factors, as believed by Dyne et al. (2003), leads to different understandings of silence. Looking for the reason behind the silence may lead to an incorrect understanding of the circumstances helping to develop incorrect

relationships and attitudes. Because of this, it is very important to correctly understand the reasons while dealing with the study of silence.

In a research conducted by Zarei Matin et al. (2011), silence is considered as being resulted from a series of managerial and organizational variables, which require some qualitative studies such as *Grounded Theory* for finding the roots and presenting useful strategies such as suggestion system due to the shortage of practical domestic research. Moreover, Afkhami and Khalili (2012) have measured the impact of employees' personality-related traits on their knowledge-related silence in RIPI based on a five-factor model. They have concluded that neuroticism and agreeableness lead to silence, while openness in relationships, extraversion, and dutifulness result in organizational voice. Based on the research model presented by Vakola and Bouradas (2005), Danayifard et al. (2010) investigated the organizational silence in the governmental sector. They concluded that there is a meaningful relationship between the silence atmosphere consisting of the attitudes of superior management and supervisors towards silence and the opportunity to make relationships on the one side, with the employee's professional attitude towards silence on the other side. They also implied the suggestion system as a method for improving the silence environment. In the continuation of their research on the relationship between the atmosphere and the silence behavior, Danayifard et al. (2011) investigated the effect of the role of organizational culture on them in three universities of medical science. They have studied the culture based on the four dimensions, namely agreeableness, participation, adaptive, and mission, where there is a stronger correlation between the first two items and silence. They have stated that improving any of these four dimensions elevates the organizational voice level.

One of the methods to decrease organizational silence is to successfully implement a suggestion system in organizations. Studies carried out indicate that correct implementation of this system in organizations has been very effective (Rapp and Eklund, 2007). Bassford and Martin (1996) have suggested that implementation of such systems lead to remarkable improvements in employee's level of comment-making and participation. Furthermore, Robinson and Schroeder (2009) have found receiving suggestions so useful that it resulted in an extra 350 million dollar profit per year at Toyota Corporation.

The influence of the implementation of suggestion systems in organizations has been improved over the recent years more than the past, as complexity growth has made organizations move towards more flexibility and adaptability. Generally, failure to adapt could lead to the destruction of organizations (Fairbank and Williams, 2001). These changes require top-down and down-top interactions within the organization. They are influenced by the interactions of superior managers and employees. In this regard, organizational strengths and weaknesses are discovered and then corrective changes are made. Suggestion systems are implemented within the organizations in order to encourage the employees to refer different issues to relevant units after they are analyzed from a practical point of view.

Similar researches carried out by Shell, KPN, and Xerox Corporation indicate improvements in employees' participation level and taking advantage of their innovation in processing their ideas towards continuous improvements within the organization (Dijk and Ende, 2003). The correct implementation of suggestion boxes in these organizations along with using intrinsic and extrinsic awards has led to getting several useful opinions. In general, it can be noted that the suggestion system is implemented in order to receive organizational voice and is a tool for increasing the voice level in large administrative organizations. In other words, considering the converse relationship between organizational silence and voice, this tool has been used so as to decrease the silence phenomenon in the organizations, even though it is a lateral function. Dijk and Ende (2003) have

identified organizational support, allocating resources, and encouraging employees as key factors for the model which makes the system work out in the organization. That is, the correct implementation of this system leads to the promotion of the organization's voice level as well as a decrease in its silence level. Thus if we see a reduction in the silence level, it can be conversely concluded that the project has been implemented successfully.

Based on research literature review, there is a gap between international research and the work by Iranian scholars, especially in the solutions provided to increase voice in organizations or the reasons behind the occurrence of silence. There have been many great studies by international scholars about the relationship between silence and social capita. Their research had ended up in several applicable models on the topic. However, Iranian scholars have not applied the models to the Iranian organizations. Differently speaking, silence theories are discussed among Iranian scholars but are not completely used as a tool in a case study. Most of the researches are qualitative based and have not used any quantitative research methodology to provide any solution to silence behavior. The current research is developed to connect silence, the quantitative methodology, and a real applied solution. The current research conceptual model in which step by step research progress is shown is depicted in Figure 1. In the first step, communication barriers and silence behavior are discussed before the silence behavior status is assessed. Then, a suggestion system is implemented in RIPI and silence behavior is evaluated again.

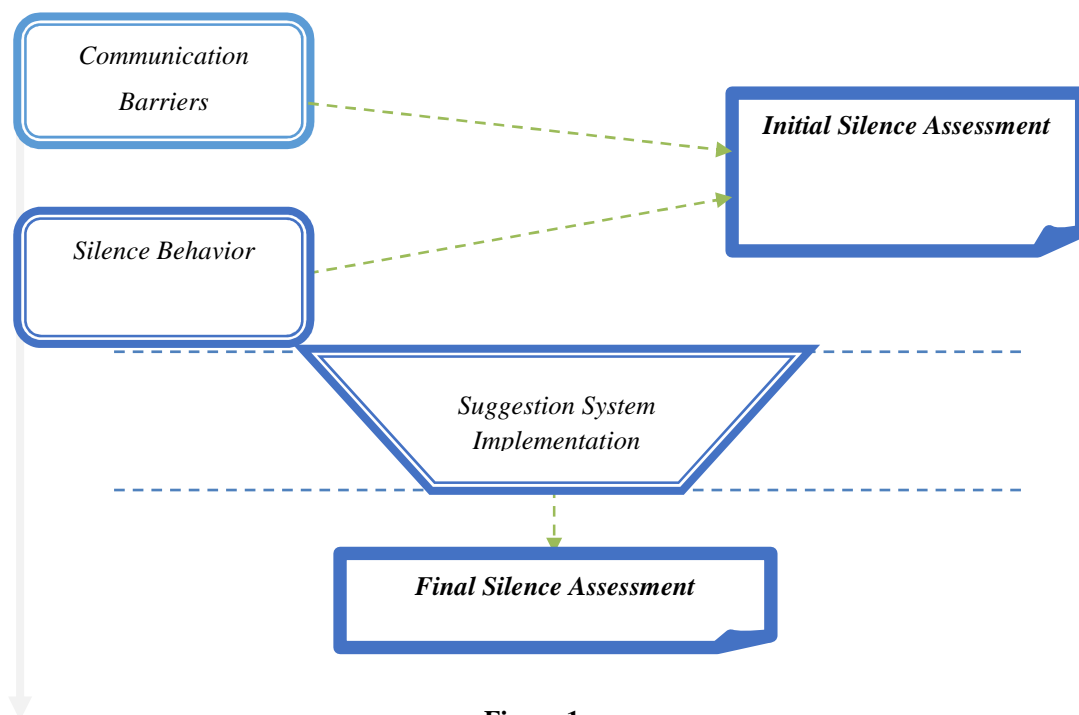


Figure 1
Conceptual model of the research.

3. Research methodology

The present research is of practical type carried out based on the quasi-experimental methodology with a pre-test and a post-test with one group (${}^{\dagger}O_1{}^{\ddagger}X O_2$). O_1 refers to the first observation and O_2

[†] Observation
[‡] Intervention

refers to the second observation; X is the intervention in the group. In a quasi-experimental design, one may observe the change after occurrence and should control the group. In contrast, the group might not be completely controlled in the experimental design. The experimental design is mostly used in science; however, it could be used by social science scholars too.

Quasi experimental design is used when a change is applied to a group, while the control of other changes in the group is not possible. In our case, the experimental design is not applicable as the target group might be faced with other factors. As the suggestion system is run in a period of 6 months, two appraisals are performed. However, the learning ability of the group in the period between the pre-test and the post-test is most likely a variable factor. The quasi-experimental design would then be more applicable. In this design, based on the results of the pre and post implementation period, the target factor (i.e. silence behavior) is assessed. The statistical population of the research includes the employees of RIPI in Tehran. The sample individuals, to be tested, have been selected in a random manner. The questionnaires were distributed in April 2014. The number of sample questionnaires filled up and returned was 181. Each respondent was given a code, which was used in the post-test in October 2014.

According to a model based on the organizational silence behavior presented by Lam (2013) at the University of Michigan, a standard questionnaire having 26 questions has been prepared after being edited with due consideration of the internal characteristics of RIPI. "Silence behavior" was then investigated through the prepared questionnaire. There are 5 questions about communication problems and 6 questions about the silence behavior. For each question, there are a mean and a standard deviation. Table 2 shows the total mean of all the questions before and after the running of suggestion system. In Table 3, a paired *t* sample test was used to compare the results in pre- and post-test to find out whether there is a meaningful variation or not. Paired *t*-test compares the difference in the means from the two variables measured on the same set of subjects to a given number (0), while taking into account the fact that the scores are not independent.

Table 1
Self-structured questionnaire based on Likert scale from 0 to 4.

QUESTIONS		0	1	2	3	4
1	The collaboration with other workers is easy,					
2	Transferring experience and knowledge is easily done among coworkers,					
3	Staff can easily communicate with their supervisors,					
4	Organization changes are informed in a good style,					
5	RIPI informs the staff about its mission and goals,					
6	Personnel can easily show their disagreement about issues related to the organization with their managers,					
7	Personnel can easily show their disagreement about issues related to their unit with their managers,					
8	Personnel can easily show their disagreement about issues related to their job with their managers,					
9	Personnel can easily show their disagreement about issues related to their job satisfaction like salaries, compensation, work condition, etc. with their managers,					
10	Personnel can easily show their disagreement about issues related to work processes, structures, etc.,					
11	Personnel can easily state their suggestions and criticisms with their supervisors.					

Reliability of the questionnaire was tested and verified using Cronbach's alpha. The alpha obtained is

equal to 0.81, which is larger than 0.7, the minimum acceptable value for the reliability of social science research. Furthermore, the face validity of the questionnaire has been investigated and confirmed by expert judgments. In the first step, using the organizational silence questionnaire, the target organization, RIPI, has been tested. In the next phase, the suggestion system plan has been implemented and a comparison has been made between the results before and after the implementation of the system. The main hypothesis of the current research is that the suggestion system can reduce the silence behavior in RIPI.

H₀: The implementation of the suggestion system has had a meaningful impact on silence reduction.

H₁: The implementation of the suggestion system has not had a meaningful impact on silence reduction.

The research methodology used here is of quasi-experimental type. Unlike the experimental methods, the control group has not been specified, and unlike semi-experimental methods, the test group has not been selected in a random manner. As a result, the method is strong in terms of its internal validity, but its external validity still could damage the results of this work (Campbell et al., 1963).

The likely damages are categorized as below:

1. Events happened while carrying out the research;
2. Psychic and physical growth and maturity;
3. How to administer the pre-test;
4. Measurement tools;
5. Returns caused by the statistical tool used in the research;
6. Respondents' performance fall.

While carrying out the research, the above-mentioned probable damages were considered from the start of implementing the comprehensive suggestion system to the end. Attempts were also made to minimize the possible damages. For instance, there have not been any simultaneous events affecting the research variables in the set of the tested individuals during the research. In addition, given that the individuals selected had achieved both individual and organizational maturity in the organization, the questionnaires could not cause any growth and maturity damage to the sample individuals. However, the research methodology used in the present work has its own weakness and strength points. But considering the accuracy applied when conducting the research methodology, its external validity has not been blemished. In other words, the results of the present research have an inherently appropriate validity as it takes advantage of the quasi-experimental method. Thus the independent variable has an appropriate effect on the dependent variable. Since the external validity leads to the generalization of the results of the research, efforts have been made to improve the relevant parameters to minimize the effects of the weak-points. Hence the quality of the results has been ensured.

Table 2

Summary of methodology.

Main variable	Silence behavior before and after running suggestion system
Tool	Self-structured questionnaire shown in Table 1,
Sampling method	Random sampling,
Sample size	181,
Measures	Communication behaviors and silence behavior,
Analytical method	Quasi-experimental design,
Statistical test used	Paired <i>t</i> -test.

4. Results and discussion

The comprehensive suggestion system was implemented in RIPI. Then, the organizational silence behavior was measured using the same questionnaire used for pre suggestion system implementation. Given that the quasi-experimental method has been used in this work, it is necessary to use the same individuals for pre and post-tests. For this purpose, each of the individuals participated in the pre-test was given a code which was again used in the post-test. Consequently, the same individuals have participated in the test. In order to evaluate the average of the two statistical populations, the paired *t*-test was carried out by using the SPSS software. As shown in the Table 2, the mean score of silence has decreased from 2.1532 to 1.4033. Furthermore, the results shown in the Table 3 indicate a meaningful difference in the value of silence between pre and post-test ($\text{sig} < 0.05$). Therefore, it can be concluded that the implementation of the suggestion system has a meaningful impact on the reduction of employee's silence behavior. Table 3 summarizes the mean score of the data gathered for the pre-test. Each cell shows a mean score of a questionnaire of the pre-test. Table 4 lists the post-test data for the same questionnaires. The difference of the overall means in Table 3 and Table 4 is 0.74987, which is used as an input for the paired *t*-test. The paired *t*-test, as shown in Table 5, indicates the significant difference of the overall means of the pre-test and post-test.

Table 3
Mean scores of data gathered for pre-test.

	1	2	3	4	5	6	7	8	9
1	2.454545	2.363636	2	1.090909	1.545455	2.363636	2.727273	2.818182	2.636364
2	3	2.545455	2	3.090909	2.909091	2.272727	2.636364	2.727273	2.272727
3	2.272727	1.636364	1.363636	2.454545	1.636364	1.454545	3	1.363636	1.727273
4	1.363636	2.181818	2	2.272727	2.090909	1.818182	1.636364	2.636364	2.181818
5	1.818182	2	2	2.545455	2.090909	2.636364	2.181818	2.090909	2.090909
6	2.727273	2.363636	2	2.727273	2	2.090909	1.909091	2.818182	2.545455
7	1.454545	1.909091	1.363636	1.727273	2.363636	2.090909	2.363636	2.636364	1.818182
8	1.636364	2.636364	2	1.818182	2	2.545455	2	1.454545	2.545455
9	1.090909	1.636364	2	1	2.090909	2.272727	2.636364	2.818182	2.545455
10	2	2.727273	1.636364	2.545455	2.636364	1.727273	2.727273	2.363636	2.818182
11	1.181818	2	1.818182	2.272727	2.818182	3.636364	1.909091	2.181818	2.727273
12	2	2.363636	2.363636	2.818182	2	2.090909	2.636364	2.181818	1.363636
13	2	1.818182	1.545455	2.818182	2.454545	2	2.272727	1.363636	2.636364
14	2.090909	1.272727	2.363636	2.363636	2.272727	1.636364	1.727273	2.545455	2.090909
15	2.181818	2.636364	1.818182	1.727273	2.272727	2.090909	2.181818	1.909091	2.818182
16	2.181818	2.545455	1.272727	1.545455	2.272727	1.909091	2.090909	2.363636	2.636364
17	2.181818	2.727273	2.272727	2	1.545455	2.181818	2.545455	2	1.454545
18	2.272727	2.181818	2.272727	1.909091	1.363636	1.909091	1.818182	2.636364	2.818182
19	2.181818	1.727273	1.545455	1.181818	2.909091	2.909091	2.545455	2.727273	2.363636
20	2.272727	1.181818	2.181818	1.727273	3	1.454545	2.545455	1.909091	2.181818
Overall Mean						2.1532			2.181818

Table 4
Mean scores of data gathered for post-test for 181 cases.

	1	2	3	4	5	6	7	8	9
1	1.454545	1.181818	1.454545	1.090909	1.454545	1.727273	1.272727	1.363636	1.363636
2	1.363636	1.545455	1.909091	0.909091	1.272727	1.545455	1.090909	1.545455	1.818182
3	1.636364	1.454545	0.909091	1.363636	1.636364	1.545455	0.909091	1.272727	1.272727
4	1.181818	1.818182	1.454545	1.090909	1.818182	1.636364	1.272727	1.454545	1.545455
5	1.090909	1.545455	1.818182	1.363636	1.727273	1.454545	1.727273	1.909091	1.272727
6	1.181818	1.272727	1.818182	0.909091	1.727273	1.545455	1.909091	1.272727	1.090909
7	1.363636	1.818182	1.181818	1.181818	1.545455	1.545455	1.727273	1.090909	1.818182
8	1.363636	1.181818	1.363636	1.454545	1.727273	0.909091	1.727273	1.272727	1.818182
9	1.090909	1.545455	1.909091	1.090909	1.272727	1.454545	0.909091	1.272727	1.545455
10	0.818182	1.272727	0.909091	1.181818	1.363636	1.363636	1.181818	1.545455	1.727273
11	1.090909	1.272727	1.545455	1.454545	1.181818	0.818182	1.636364	1.454545	1.545455
12	1.545455	1.090909	1.272727	1.363636	1.454545	1.909091	1.090909	1.272727	1.272727
13	1.272727	1.545455	1.090909	0.818182	1.454545	1.545455	1.454545	1.363636	1.454545
14	1.363636	0.909091	1.363636	1.727273	1.363636	1.181818	1.636364	1.272727	1.181818
15	1.363636	1.363636	1.727273	1.363636	1.545455	1.727273	1.545455	1.090909	1.181818
16	1.727273	1.636364	1.272727	1.636364	1.545455	1.727273	1.727273	1.272727	1.727273
17	0.909091	1.181818	1.909091	1.636364	1.727273	1.636364	1.272727	1.545455	1.454545
18	1.272727	1.636364	1.363636	1.909091	1.181818	1.545455	1.454545	1.454545	1.727273
19	1.181818	1.818182	1.272727	1.181818	0.818182	1.363636	1.090909	1.272727	1.636364
20	1.363636	0.909091	1.727273	1.454545	1.090909	1.272727	1.454545	1.545455	1.363636
Overall Mean						1.4033			1.181818

Table 5
Paired samples statistic.

		Mean	N	Std. error mean
Pair 1	Pre	2.1532	181	0.52953
	Post	1.4033	181	0.51401

Table 6
Paired *t*-test sample.

		Paired Differences					<i>t</i>	Degree of freedom	Sig. (2-tailed)
		Mean	Std. deviation	Std. error mean	95% confidence interval of the difference				
					Lower	Upper			
Pair 1	Pre-Post	0.74987	0.60065	0.04465	0.66178	0.83797	16.796	180	0.000

The *t* paired or dependent *t*-test is performed and the *t* is 16.796; the corresponding *p*-value is 0. Therefore, it can be stated that our null hypothesis (H_0) is accepted. This means that there is a

meaningful relationship between the pre-test and the post-test silence status. If the *p*-value were more than 0.05, there would have been no relationship. This means that there has been a meaningful relationship showing an effective change in the group silence behavior. As there have been no other intervening variables, it can be inferred that the suggestion system implementation in the organization has been the main variable for these changes. All formulas used in the current work methodology are listed in Table 7.

Table 7
List of used signs in paired *t* sample test.

x_i	Data from sample 1	In this work, the means are shown instead of the samples.
y_i	Data from sample 2	In this work, the means are shown instead of the samples.
d_i	The pair wise difference	$d_i = x_i - y_i$ (1)
s_d	The standard deviation of the sample pair wise differences	$Sd = \sqrt{\frac{1}{n-1} \sum_i^n (d_i - d)^2}$ (2)
t	<i>t</i> paired	$t = \frac{d}{s_d/\sqrt{n}}$
n	The sample size	181 samples have been accepted.
μ_d	The true mean of the population of pair wise differences	μ_d is defined as the difference between means.
D	The hypothesized mean of the pair wise differences	It is zero.

The present research has been conducted using a quasi-experimental method. In terms of internal validity, the method is very strong and its validity has been improved by observing the organizational and employee’s conditions. Quasi-experimental design leads to a weak external validity, which means the low effectiveness of using the same results for other organizations. However, we have controlled the organizational conditions to reduce this effect and to make it possible to use the developed model as a highly useful tool to measure organizational parameters in similar circumstances. Lack of the implementation of other similar or interrelated projects in the period of the experiment, accuracy in administering the test, and educating the employees all lead to an increase in the external validity. The positive results after running the suggestion system also indicate the lack of any fall in the sample individuals. In other words, the external validity is improved by controlling the system as a whole, and thereby leading to the results that are closer to the reality.

Herein, based on Morrison’s model, silence is studied through individual, organizational, and relationship concepts to understand it from the viewpoint of relationships or behavioral obstacles. It was found out that the most important reason behind this can be seen in the individual’s behavior affected by conformity with the group of colleagues or fear of receiving a negative feedback. In fact, today’s models such as Vakola and Bouradas (2005) and Milliken and Morrison (2003) have confirmed these fundamental facts as silence is a collective-oriented phenomenon which appears to maintain the status quo and the fear of the future situation. In other words, silence might be seen as a virus as it spreads and is transferred from one individual to another and even from a subject to another one.

Running the suggestion system was the only contributor to voice improvement as there were no other factors present during the period of the research. Based on this fact, it can be stated that running the suggestion system has made a climate change in the organization. Moreover, providing this system has changed the employees' paradigm of cooperating with the organization. They have therefore been facing a structured method to get involved in the organization and to share their ideas and suggestions with their supervisors and managers. One of the main reasons behind the organizational silence in most organizations is the lack of communication channels and the lack of cooperative management plans. To this end, establishing the suggestion system has practically been the main reason to develop an environment for employees to be acknowledged to cooperate with the organization. This tendency to cooperate with the organization has always been a necessity in the organization. However, the lack of a structured system for employees has ignored this request. Establishing the suggestion system in RIPI has been the initial movement in this regard as there were no such plans in the life time of the organization. Suggestions provided by the employees after running the suggestion system show this tendency. In a short period after running the system, there have been a lot of suggestions provided and many have been approved by the panel. Regardless of the mutual benefits of running the suggestion system for the organization and the personnel, we believe that this method is capable of breaking the previous paradigms regarding the silence behavior. Before that, employees believed that they were not able to share their ideas with higher levels of organization.

RIPI is a knowledge-based organization and is classified as a research and technology organization. Considering this knowledge-based approach, employee's feedback and the lack of silence are of much more importance to RIPI (Tulubas and Celep, 2012). Parallel to its organizational development and to improve the employee's participation in micro- and macro-decision making, a suggestion system has been recommended for implementation in the organization. The implementation of this system has led to improvements in the trend of employees' comment-making. The results obtained indicate that the overall average of the two factor obstacles to relationships and silence behavior after the implementation of the system has been highly reduced compared to the results of before suggestion system implementation. This suggests that the implementation of this project has improved the employee's viewpoints; thus, now, they tend to share more ideas or implicit knowledge with their supervisors and other employees. The results are in accordance with the previous studies in this regard.

Many Iranian organizations are facing silence behavior. However, this subject is not well discussed among the Iranian scholars. Some organizations have not yet considered it as a main stop in their organization activities. There is no clear evidence in research databases about investigating roots of silence in Iranian organizations or providing solutions to lower the silence. There are many organizations which have used suggestion systems, but they have not yet seen it as a tool to break silence. This vision helps managers to run the suggestion system with the target to use it not only for suggestions to economic savings, but also as a method to increase cooperation. Checking the silence status in Iranian organizations at the first step is suggested, since this can be a good parameter to appraise the cooperation level. Organizations need mutual cooperation between the bottom and the top line to increase flexibility, which will lead eventually to more participation and improvement. In fact, this is one of the main parameters making an organization dynamic. This makes voice a mandatory phenomenon in the organization.

Silence and voice are concepts rigidly integrated with other social capital dimensions. They are also signals for other social capital dimensions. In our reviewed studies, this concept is generally explained by social capital. Therefore, considering social capital roles such as trust is a necessary step for

silence behavior studies. For future studies, using a pre study about social capital and checking the status of its dimensions before and after running the suggestion system is suggested. It is also recommended that more attention should be paid to the concept of culture as well as social capital in the occurrence of silence in future research. It is possible to take advantage of the Hofstede model in connection with culture (Mehrabanfar and Nobari, 2013) and the Kennedy Harvard design for measuring social components (Mehrabanfar and Aghaz, 2014), especially as it seems that there is a shortage of domestic research regarding the relationship between these components and the organizational silence, while they have a remarkable impact on the occurrence of the silence.

5. Conclusions

Silence is a concept intertwined not only with the organization context, but also with several concepts in politics, culture, and even history. To determine the value of silence in the administration of justice, one may refer to the movie *“To Kill the Mockingbird”* (1960), which shows the real value of voice. However, silence is a fundamental and infrastructural phenomenon. This is why so many scholars have suggested different reasons behind its occurrence and investigated it in terms of several aspects. The reasons suggested by different scholars are not separate from each other. Social capital cannot be separated from culture and culture cannot be separated from manager’s attitude as there is a close relationship between these factors. The identification of the existence of silence may be of the first priority as there are a large number of studies, which show that employee’s silence may cause stress, dissatisfaction, and the reduction of organizational commitment (Beer and Eisenstat, 2000). In other words, obviating the silence, if existed, is of top priority for any organizations as it may be the root of some other problems. Milliken and Morrison (2003) have stated the factors related to social capital, culture, and the structure of relationships among employees and supervisors as the reasons behind the occurrence of silence. Vakola and Bouradas (2005) paid their attention to supervisor’s attitude towards the silence phenomenon as well as the existing opportunities to make relationships. But none of these studies, especially those by the Iranian scholars, has tried to get out and improve the organizational silence concept and to change it to the organizational voice. The current research has tested the suggestion system, as a systematic tool for eliminating or improving the silence conditions. According to the results obtained, the administrative assessment of the project is estimated to be positive.

Nomenclature

RIPI	: Research Institute of petroleum Industry
<i>t</i>-test	: Student’s <i>t</i> -test
SPSS	: Statistical package for the social sciences
Std. deviation	: Standard deviation
Sig. (2-tailed)	: Significance (2-tailed)

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