

## ANALYSIS OF INDIVIDUAL AND ORGANIZATIONAL FACTORS THAT HAVE INFLUENCE ON THE TACIT KNOWLEDGE SHARING BY FUZZY LOGIC METHOD<sup>1</sup>

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**Abstract:** In this study, it's aimed to identify that how and in which dimension that individual and organizational factors have influence on the Tacit Knowledge Sharing and also providing suggestions for using Fuzzy Logic method as a prediction tool for relation between the variables. Under the extent of the study, Tacit Knowledge Sharing taken account dependent, organizational structure and culture, positive and negative result expectation, self-efficacy and trust to management are acknowledged as independent variables. The survey application of the study held on three different universities which are Gazi University (Ankara), Kırıkkale University (Kırıkkale) and Ahi Evran University (Kırşehir). According to the results, it's noted that Fuzzy Logic method is successful and negative result expectation, centralization and formalization have negative influence on information sharing but rest of the factors have positive influence on it.

**Key Words:** Knowledge Management, Tacit Knowledge, Fuzzy Logic

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## 1. INTRODUCTION

In modern-day management and organization understanding, human based organizations have become informational systems beyond being systems in which energies of employees gathered and it faces with the hardness of collecting and storing information (Katz & Kahn, 1977:245). Having strategic significance, knowledge eases making decision in atmosphere of uncertainty and is gaining more and more importance in daily lives of individuals (Öğüt, 2001:1).

Together with the increasing importance of concept of information, the concept of “Information society” that requires novelty and creativity in each phases also comes into prominence. Knowledge oriented paradigm have been relieving creativity for competition, process for success, solution for problem approaches and examining usage of knowledge from the point of organizations. This paradigm suggests a model that changes between input-process-output and explicit-tacit knowledge in solution of organizational problems. Gaining, usage and sharing of knowledge include easy, fast and explicitly accessible system, process and implementations that the members of organization are in need of. Bringing in the knowledge capacities of members of organization or groups in organization is evaluated as “competitiveness treasury” or modern-day organizations. This basic target becomes more

of issue within the point of transferring power of knowledge in organization to organization-al purposes. In as much as, increase in sharing level of knowledge and gaining sustainability enable the equipment of both employees and organization memory with more knowledge. In this context, it is possible to express that production, distribution, share and transfer of knowledge is possible with the internalization of ideas and processes in question by employees (Nonaka et. al. 1994:4-6; Nonaka et. al. 2006:1179).

With regard to modern-day organizations, sustainable success can be provided with a participative organizational atmosphere that reveals knowledge and that bring all employees together in a common point rather than concealing or leaking knowledge. Such that, not revealing and avoiding share of the knowledge gained as a result of experience, skills and trainings have become one of the innate problems of executives in many large and small organizations. Unrevealing tacit knowledge that reflects the training, skills and experiences of employees as necessary may cause lose of qualified human resources with all acquisitions and new organization members’ lacking of this knowledge. For this reason, one of the main duties of the executives is to actualize the decisions and implementations that can bring share and usage of Tacit knowledge into force and to direct



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negative and positive factors that affect this process in a right way by checking those factors (İbicioğlu&Doğan, 2006:90; Sağsan, 2007:111-113). In this process, one of the priorities of management floor is to establish sharing mechanisms that will provide the reveal of tacit knowledge and to determine the variables that affect sharing levels to do so. During knowledge sharing process, factors such as intention, self-determination and continuity of members of organization may have also influence besides the cultural and structural efficacious. Thus, it is necessary for the organizations that pay attention to knowledge share to evaluate organizational and individual factors all together (Koza, 2008:143-145).

Within this framework, tacit knowledge is accepted as an effective factor to reach success, to make the novelty and creativity continuous and to come to the fore in competition conditions that is getting more and more intense nowadays (Doğan, 2004: 107; Bolat, 2009: 341). Thus it is extremely important not to confine to data processing in dynamic business environments but to explore, to reveal and to provide sharing tacit knowledge among employees. Likewise, there has been comprehensive researches that express that tacit knowledge is effective on performance of business and employees and capability of novelty of the organization (bkz. Lin, 2008a; 2008b; Liu & Cui, 2012).

When the subject of this study and the method that is implemented evaluated together, it can be seen that the most comprehensive study done before is performed by Lin (2008a; 2008b) in Taiwan manufacturing businesses. Knowledge sharing is discussed as a dependent variable and with a general approach in both studies. In aforementioned studies the attitude of knowledge sharing is not divided as “tacit” or “explicit” knowledge and each kind of knowledge sharing among employees in different levels in organization is expressed. In the same study, organizational culture, organizational structure, organizational reliance and organizational dependency variables are preferred as factors that affect knowledge sharing and fuzzy logic is used as method of analysis. In these studies; organizational culture is studied as bureaucracy, innovative and supportive culture sub-factors; and organizational structure is studied as formalism, centralization and totality sub-factors. From this point of view, it can be expressed that this study has some distinctive features when compared to previously done. Especially, in this study attitude of tacit knowledge is dealt with as an independent variable being more particular and limited rather than attitude of knowledge sharing. The difficulty in measurement of tacit knowledge makes it difficult to carry out measurements on sharing of it. For this reason, it can be said that researchers use explicit and tacit knowledge together.



One of the features that makes this study significant is that the effect of Conclusion Expectancy, Structure of Organization, Organization Culture, Confidence in Management and Self-sufficiency perception that are used as independent variables, on tacit knowledge sharing attitude is expressed all together and integrally. Particularly usage of Negative Conclusion Expectancy in this study for the first time can be accepted as important within the sense of originality of the study. Yet, it can be observed that subjective assessments of participants during data gathering may result in concealing negative statements and not being reflected in general evaluation. Thus, involving negative conclusion expectancy in measurements as well as positive conclusion expectancy will enable setting forth the emotion, thoughts and expectations of employees in business life in two different terms. One of the main issues that increases the significance of the study is the originality of the method of analysis that is used. Within this perspective, this study is the first in Turkish literature.

There are two purposes of this study deemed to be final. (1) Determination of how and at which level some organizational and individual factors affect the sharing of tacit knowledge; (2) Development of determinations and suggestions for usage in analysis of relations between variables as an estimator of fuzzy logic method. This study presents theoretical

aspects that include literature basis and hypothesis and afterwards, results of analysis performed with fuzzy logic method are presented.

## 2. LITERATURE REFERENCES

Looking at literature, knowledge is evaluated as a main power that supports novelty and creativity within the scope of organization conditions of today and competitiveness and it can be seen that particular attention is paid to individual tacit knowledge. In this context, it is accepted that individual knowledge is main factor; yet, group attitudes in production or reveal of new information for success of organization is not ignored (Erden et. al. 2008:6). Some studies put emphasise on bringing the tacit knowledge in organization and its quality (see: Gourlay, 2004; Nonaka et al., 2000; Nonaka, 1994; Polanyi,1967; Doran, 2004; Koskinen, 2001; Sanders, 2004).

In this framework, it can be seen that there has been various studies on the factors that affect sharing of tacit knowledge among employees (see: Bock & Kim, 2002; Bock et. al. 2005; Kankanhalli et. al. 2005; Purvis et. al. 2001; Wasko&Faraj, 2005). It is used in Tsai (2002) that knowledge sharing among units and hierarchical ranks in organizations to explain social network theory. Hansen (2002) emphasised on the importance of parallel communication within the frame of



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knowledge sharing and stated that smaller and more flexible structures can be more efficient in knowledge sharing. It is stated in Tsai and Ghoshal (1998) that removing communication obstacles inter-departments in organization has positive effect on knowledge sharing and incites innovativeness.

Looking at the similar studies in literature, it is possible to assess knowledge sharing in two perspectives. Accordingly, it is required not to ignore the attitude of knowledge sharing and intention factor in compliance with this attitude. It is highly possible that a person who intends to perform this attitude individually would perform this attitude because of different causes of motivation (Yang & Farn, 2009:212). However, in this study tacit knowledge sharing intention and sharing attitude is analysed by evaluating as single factor under the name of "tacit knowledge sharing" due to the difficulty of measuring the intention of knowledge sharing and subjectivity that increases in relative way during obtaining data.

On the other hand, when studies on reveal of information in the process of determination of the variables used in the study are evaluated, it can be observed that some variables become evident in organizational and individual level. Krogh, Ichijo and Nonaka (2000) grouped the obstacles on knowledge sharing in two groups as individual and organizational obstacles. Individual obstacles generally consist of main

expressions related to the losing faith of the person, and on the other side, organizational obstacles are considered as communication and organizational structure. Generally, organization climate, organization structure, organization culture, reliance on administration, motivation and some means of incentives are used as independent variables in the performed studies (Hsu et. al. 2007:154). There are some studies on the positive effect of reliance of employees on the administration on knowledge sharing intention (Lucas, 2005; Koshinen, Pihlanto & Vanharanta, 2003).

In the study carried out by Simonin (1999), it was presented that for aforementioned reason knowledge sharing in USA companies is more difficult than in Japan companies. Particularly, cultural differences among employees may increase the organizational conflicts and anxieties. Furthermore, it is understood that some problems arising from organization structure and reliance and mutual expectation among employees also complicate obtaining of tacit knowledge (Collins & Hitt, 2006:148-160; Spulber, 2012:642).

Even though the effect of variables as organization culture, organization structure and reliance on administration on knowledge sharing is generally determined, it can be observed that the number of studies on tacit knowledge sharing is limited. However, organizational culture and structure taking information rela-



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tions among members of organization into consideration is needed to reveal the tacit knowledge. Similarly, Shao and Liu (2012) discussed the effect of culture on the attitude of knowledge sharing in two perspectives as explicit and tacit knowledge sharing and stated that the effect on Implicit knowledge sharing is more powerful. For this reason, organizational culture, organizational structure and reliance on administration take place in this study as independent variables. Recently, it is started to examine the relation between self-sufficiency and attitude of knowledge sharing (Kim, 2002; Kaankahalli et. al., 2005; Hsu et. al., 2007). In these studies, the positive effect of self-sufficiency factor on attitude of knowledge sharing introduced. Besides this, preference of conclusion expectancy and self-sufficiency perception can be considered as a variable that must be analysed in universities and that may be interrelating with each other. Reliance on administration can also be seen as a variable that pave the way for the effect of these two variables. In this respect, the variables that may present new findings within the sense of sample of the study as well as the variables the effects on attitude of knowledge sharing have introduced before, in the determination of variables used in study. This constitutes a basis while forming hypothesis that are explained separately for each variable and given below.

## 2.1. THE CONCEPT OF KNOWLEDGE

Knowledge and information that are expressed by words and figures can substitute each other but there are differences between these concepts. Knowledge, unlike information, includes dependence and belief elements. This aspect of also expresses the relation with human actions (Nonaka, 1994:6). Information is the form that is transferred from the outside of organisms and recorded. On the other hand, knowledge is located in the brain of the individuals. It is possible to obtain new knowledge by processing information. It can be claimed that there is a parallelism between the discussion of knowledge as a social concept and studies on organizational knowledge (Akgün&Keskin, 2003: 176-178).

## 2.2. KNOWLEDGE CONVERSION PERIOD

Polanyi (1996) categorizes the knowledge concerning human beings in two ways as implicit and explicit knowledge (Nonaka, 1994:7). Knowledge in organizations is generated by means of interactions between explicit and tacit knowledge. The interaction carried out between these two types is called as conversion of knowledge. In the study performed by Nonaka& Takeuchi (1995), it is stated that tacit knowledge can become explicit knowledge via some means. The pro-



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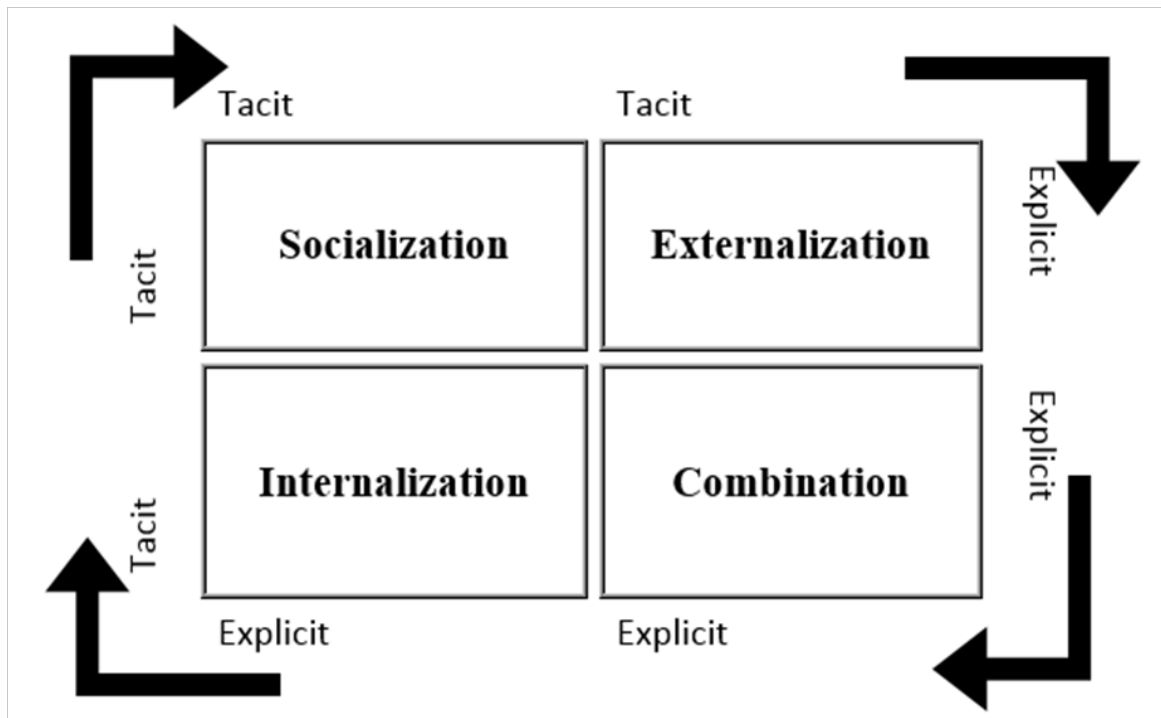
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cess of creation of knowledge among explicit and tacit knowledge is continuous within the frame of organizations. Knowledge conversion model (SECI) that takes the relationship between implicit and explicit knowledge as a basis and that is commonly accepted is given in Figure 1. Socialization may occur in or out of the borders of organization. In this phase which is evaluated as tendency from tacit knowledge to tacit knowledge, Implicit knowledge may occur and be shared with the interaction between individuals. In this case, socialization is a process that is related to the social dimension of organization such as attitudes and relations of group and organization culture. Employees learn tacit knowledge in social dimension of organization with interpersonal relations. Interpersonal learning works with observation and imitation rather than being in compliance with written and oral rules (Atak, 2011:165). Knowledge conversion in master-apprentice relations can also be given as example of socialization. In externalization aspect, interpersonal communication and reflections provide conversion from tacit knowledge to explicit knowledge and when Implicit knowledge is released, crystallisation of knowledge is ensured. Conversion of Implicit knowledge as explicit knowledge in knowledge generation process is knowledge's taking shape of procedures, instructions, hypothesis or concepts. Methods such as "most successful

examples" implementation in which experiences are recorded by being shared, expert systems and case based reasoning; narration and knowledge interchange records are used in conversion of Implicit knowledge to explicit knowledge. However, it needs to be paid attention to implement suitable method in this phase. Merging knowledge means the tendency from explicit knowledge to explicit knowledge by gathering more complex and systematic knowledge. Interchange or merging of knowledge via documents, meetings, phone conversations or computer networks is the point in question. One of the most suitable examples of this process is information's that is obtained as a result of the studies performed by an auditor in organization, becoming a financial report. However, in internalization explicit knowledge is converted to tacit knowledge. In this process, explicit knowledge is shared throughout groups and organizations. During internalization process of knowledge, together with the share of newly generated explicit knowledge with whole organization, members of organization internalize this knowledge. Organization members' internalization of this knowledge, in other words, means concerning knowledge's being hidden and their own knowledge. In this case, the action that occurs is conversion of explicit knowledge to Implicit knowledge. The process of internalization of knowledge is closely related with learning by practising, that is one

of learning methods. (Nonaka et. al. 2003:886;  
Zaim&Seçgin, 2012:6).

**Figure 1. Knowledge Conversion Model (SECI)**



**Source:** Nonaka ve Takeuchi, (1995)

### 2.3. TACIT KNOWLEDGE

Tacit knowledge is a kind of knowledge that is hard to be expressed orally, subjectivity of which outweighs and varied from person to person. There are two aspects of this knowledge, which are technical and cognitive. Technical aspect of tacit knowledge is knowledge that is developed in the intellect of individual based on manhandling and is not revealed. Cognitive aspect, on the other hand, consists of

beliefs, ideals, opinions, conventional judgments and mental models. Implicit knowledge that is kept in the brains of employees is converted to explicit in organizational level by being coded (Sagsan, 2006:32). In spite of that, explicit knowledge is a knowledge that can be coded, used in a systematic way and expressed and easily transferred via symbols and other means. However, any knowledge that can be expressed needs to be supported



with tacit knowledge. In other words, the roots of human knowledge are in relation with tacit knowledge processes (Liu & Cui, 2012:2074). Implicit knowledge is a knowledge that is hidden in experiences, skills and various actions of individuals in cognitive and technical way. It is assumed in Implicit knowledge that the person has more than the said and written (Alavi&Leinder, 2001:110; Schulz &Jobe, 2001:142). Implicit knowledge can be analysed in two main sections in itself. First, technical knowledge, know-how and skills, and the second is cognitive knowledge such as belief, perception and foresight (Khuzaimah& Hassan, 2012:344). At the same time, tacit knowledge that is used in novelty and creativity also constitutes 90% of knowledge store of human brain (Doğan, 2011:79).

#### 2.4. TACIT KNOWLEDGE SHARING

Looking at the applications directed to knowledge sharing attitudes, it can be observed that knowledge sharing intention that determines attitude performance of person and being clarified with subjective norms are affected by various organizational and individual factors. As implicit knowledge that is hidden by employees provides competitive advantage among them, employees do not want to reveal them (Sagsan, 2006:32). There are several explanations on the fact that there is a relationship between the power of intention on

knowledge sharing and the sizes of attitudes that occur (see: Chang, 1998; Chau& Hu, 2001; Yang &Farn, 2009). This case not only directs the managerial researches between two variables but also directs the researchers within the scope of psychology discipline (Ryu, Ho& Han, 2003:114). However, implicit knowledge sharing is taken as a single factor by gathering “intention” and “attitude” variables together in this study as it is hard to measure the sharing intention.

#### 2.5. FACTOR THAT AFFECT TACIT KNOWLEDGE SHARING AND DEVELOPING HYPOTHESIS

The factors that affect implicit knowledge sharing are discussed as organizational and individual factors in this study. Organizational factors consist of organization culture and organization structure; individual factors consist of self-sufficiency perception, reliance on administration and conclusion expectancy (positive-negative). Theoretical details on these factors are given below and suggested research model is set forth.

##### 2.5.1. ORGANIZATION CULTURE

The affect of organization culture on the increase of organizational knowledge sharing and success of knowledge management applications in changing levels is analysed in several studies (Davenport, De Long, & Beers, 1998; Davenport &Prusak, 1998).



Employees of organization may perceive the system in a different way compared to the individuals out of organization. This difference consists of codifications, norms and values in relation with the system and common expectations with other members (Katz & Kahn, 1977:251). A significant part of these variables is under the effect of organization culture. The fact that sharing culture affects attitude of knowledge sharing strongly has already been expressed in previous studies (Yu et. al.,2010; Jones et. al., 2006). For this reason, Organization culture can be accepted as the most significant supportive in reveal and sharing of implicit knowledge.

### 2.5.2. ORGANIZATION STRUCTURE

For the success of a culture system that focuses on sharing of implicit knowledge, it needs to establish an organizational structure in compliance with this. Because, organizing the organizational structure in a way to constitute an obstacle on sharing of implicit knowledge may commence separation, conflicts and severances among members of organization. This case requires compliance between organization culture and organization structure. It is possible to claim that an organization structure that is external environment and change sensitive and that is flexible and apparent can increase the tendency on cooperation and sharing on employees (İbicioğlu&Doğan, 2006:111-115). Organizational structure that

is in comply with this case may pave the way to encourage employees on knowledge sharing by forming knowledge sharing channels and usage of technology in the organization. In organizations based on hierarchical, scalar relationships and extreme control, lack of confidence against management or fear culture may be in the ascendant. (Barutçugil, 2002:118-119). There are some studies that express the fact that organization structure affect the attitude of knowledge sharing (Abili et. al., 2011). Considering the studies on organizational structure, it can be observed that generally formalization, centralization, coordination, technical qualifications, sophistication and hierarchical system sub-dimensions are used as variable groups (Bkz. Blau, 1967; Hickson, 1969; Reiman, 1973; Germain, 1996; Andrew &Kaçmar, 2001; Daft, 2001; Robbins & Coulter, 2003; Lin, 2008; Willem &Buelens, 2009). Willem &Buelens (2009) set forth that low formalization has positive effect on attitude of knowledge sharing, and centralization has negative effect on it. Within the direction of these determinations obtained from literature, formalism, hierarchy and centralization effects are analysed as sub-factors within the frame of organizational structure variables in the study.

**Formalism:** It refers to the fact that organizational relationships and job-oriented activities are continued with formal rules, regula-



tions and procedures to what extent (Lin, 2008:667). The more the level of formalism of organization increase, the more the rights and duties of employees and all rules, procedures and instructions needs to be officially determined. As formalism factor create extreme control and thus decrease flexibility have negative effect on knowledge sharing (Chen & Huang, 2007:106; Willem & Buelens, 2009:152).

**Hierarchy:** It is not possible to increase share and usage of implicit knowledge with a hierarchical structure that is too strict. (İbicioğlu&Doğan, 2006:117-118). Increasing in hierarchy level in organization may cause some bureaucratic and communicational problems and may make knowledge sharing among employees difficult.

**Centralization:** It is a variable that expresses to what extend the power of making decision is focused on top management and hierarchical system is the focus of making decisions. The increase in centralization level of organization may affect attitude of knowledge sharing in negative way (Willem & Buelens, 2009:152). Increase in centralization level is a process that has negative effects on organizational dependency and that eliminates high participation condition in duties and projects among employees. In fact, developments in business life require proliferation of sense of responsibility and strengthening of self-

control and self-determination in decisions for enhance of knowledge sharing among employees (Chen & Huang, 2007:106). With this aspect, increase in centralization level may decrease implicit knowledge sharing among employees.

### 2.5.3. POSITIVE AND NEGATIVE CONCLUSION EXPENTANCY

It is a fact that members of organization are doubtful and selfish in sharing and usage of knowledge as a result of the anxiety of other employees' being competitors of them (İbicioğlu&Doğan, 2006:90). For this reason, conclusion expectancy means positive and negative results that are expected from their own behaviours. It is possible for his expectation to be evaluated within physical, social and self-sufficiency scope. It can also be accepted that many acquisitions such as enjoyment, pain, reward, power and authority are under the effect of conclusion expectancy. In the study performed by Bandura (1997), it is expressed that positive and negative expectations may direct human behaviours. Likewise, employees' thinking of the things that are to be lost as much as the reward to be gained regarding knowledge sharing is a result of rational human behaviours (Hsu et. al. 2007:156). Together with the changes in competition conditions and employees' being in a race during routine business lives in varying levels, it may be possible to cause retarda-



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tion in the tendency of sharing their experiences and background information with others. This case can be accepted as a product of the expectation of employees for positive or negative results that will be obtained by implicit knowledge sharing. Sharing of knowledge can be explained with instinct of progression to a better position or losing current position of organization member who shared this knowledge. There are some studies that state that conclusion expectancy has effects on individual knowledge sharing (see: Bock & Kim, 2002; Kankanhalli et. al. 2005). In this study, positive and negative conclusion expectancy are assessed as two sub-variables and tried to explain what kind of conclusion expectancy is more effective on sharing of implicit knowledge.

#### **2.5.4. SELF – CONFIDENCE**

In the studies recently carried out, it is stated that the individuals with high self-sufficiency can eliminate negative expectancies that may arise from attitude of knowledge sharing (Constant et. al. 1994; Bock& Kim, 2002; Kankanhalli et. al. 2005; Hsu et. al. 2007). As per these studies, self-sufficiency criterion that includes perceptions of employees as skill, success and satisfaction has a certain level effect on motivation in organization and course of behaviour. The level of actualization of intentions to performance is higher in the individuals with high self-suf-

ficiency compared to individuals with low self-sufficiency level in the organization. It is understood that the positive changes in individuals' perception of self-sufficiency affect knowledge sharing intention besides motivation and performance (Chen, Chuang & Chen, 2012:112). Thus, possible effect of self-sufficiency factor on knowledge sharing conclusion expectancy that is accepted to have effect on knowledge sharing attitude of individuals can be analysed together. For this reason, three hypotheses regarding the perception of self-sufficiency are established in the study.

#### **2.5.5. TRUST ON ADMINISTRATION**

It is possible to mention about management skills that eases knowledge sharing and generation of new knowledge in an organization in which knowledge is paid importance. Executives having this skill is called as “knowledge leaders”; and it is observed that they try to create body of rules and an environment that supports corporation among organization members and that encourages knowledge sharing and transfer (implicit and explicit) (Nonaka et. al.. 2003:888). In both social and organizational environment, it is expected from organization members to rely on management as well as relying on other members of organization to increase knowledge sharing (Renzl, 2008:208). Increase in the level of reliance on administration is one of the tools



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that encourage employees to act within the direction of organizational purposes. Executives shall create a sense of trust on employees that they will be rewarded in the event that they share their knowledge and experiences and as a result this can increase knowledge sharing (Abrams et. al. 2003:65). Thus sharing of individual knowledge in implicit and explicit way is made easier and faster by increasing reliance levels of organization members on management. At the same time, it is determined that employees' level of reliance on administration also has effect on several variables that can be seen in workplaces such as satisfaction, loyalty, efficiency and stress besides knowledge sharing (Kramer, 1995; Levin & Cross, 2004).

Hypotheses that can be tested to actualize the general purpose of the study as well as explanations and ground given above are:

H1. There is a positive relation between organization culture and implicit knowledge sharing.

H2. There is a positive relation between organization structure and implicit knowledge sharing.

H2.1. There is a negative relation between level of formalism and implicit knowledge sharing within the scope of organization structure.

H2.2. There is a negative relation between level of hierarchy and implicit knowledge sharing within the scope of organization structure.

H2.3. There is a negative relation between level of centralization and implicit knowledge sharing within the scope of organization structure.

H3. There is a positive relation between implicit knowledge sharing and conclusion expectancy.

H3.1. There is a positive relation between positive conclusion expectancy and implicit knowledge sharing.

H3.2. There is a negative relation between negative conclusion expectancy and implicit knowledge sharing.

H4. There is a positive relation between level of self-sufficiency and implicit knowledge sharing.

H4.1. There is a negative relation between level of self-sufficiency and negative conclusion expectancy.

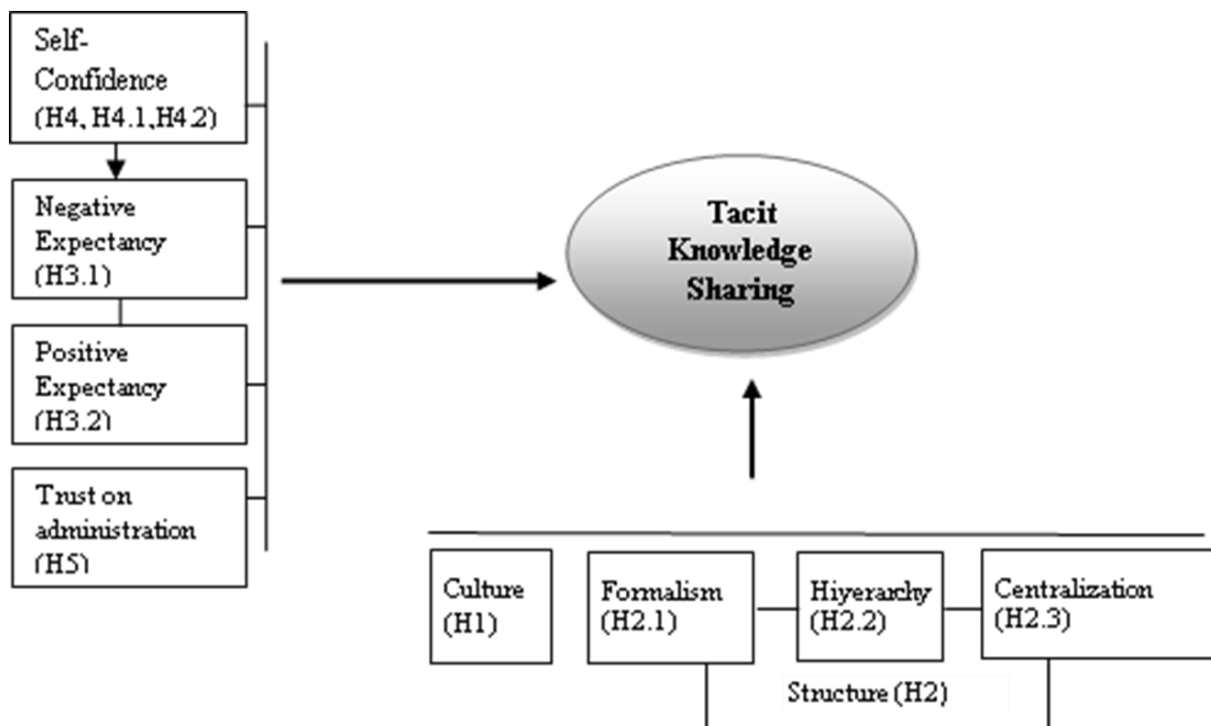
H4.2. There is a positive relation between level of self-sufficiency and positive conclusion expectancy.

H5. There is a positive relation between level of reliance on administration and implicit knowledge sharing.

### 2.5.6. RESEARCH MODEL

As per deductions and hypotheses made by literature research, model suggested in the study is given in figure 2.

Figure 2. Research Model



### 3. RESEARCH METHODOLOGY

#### 3.1. Data Collection Tool

Questionnaire technique is used to collect data within the scope of study and Five point Likert scale take part. Questions on determination of demographic features and statements used for measurement of variables are included. In some studies there are some expressions for determination of knowledge sharing and empirical studies on implicit knowledge sharing

are limited relatively. For this reason, expressions on implicit knowledge sharing are taken from (Yang &Farn, 2009; Bock, et. al. 2005) and then adopted. Expressions on positive conclusion expectancy are taken from (Hsu, et. al. 2007) in which the relation with attitude of knowledge sharing is presented and then these are developed. Expressions that define negative conclusion expectancy are prepared within the scope of the study. Thus, whether employees' fear of losing or beliefs



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of gain outweigh can become measurable. While determining the expressions included in other variables, it is paid attention to their being about the attitude of knowledge sharing and scales' level of validity-reliability is tested before. In this respect, self-sufficiency is taken from (Karatepe, et. al. 2006); reliance on administration is taken from (Evangelista &Hau, 2009); expressions on organization culture and organization structure are taken from hierarchy (Willem &Buelens, 2009); formalisation and centralization is taken from (Chen & Huang, 2007).

### 3.2. Sample

It can be understood that health and manufacturing businesses have generally been preferred as sample in the previous studies about knowledge sharing. Looking at Turkish literature, it is observed that there is a questionnaire performed on interns of Gazi University Medical Faculty Hospital (Göksel et. al., 2010). Hence, when looked at the similar studies, it is possible to state that the studies that cover academic and administrative staff of universities are in limited numbers within the scope of sample. Population of this research is academic and administrative staff of Gazi University, AhiEvrans University and Kırıkkale University. It is known that the number of academic and administrative staff who are permanent in the related institutions is approximately 2500 and size of sample

is counted as 333 by foreseeing 95% within the confidence limit and 5% error margin (Kurtuluş, 2004:191). Having information oriented service and working principles, universities are preferred for the questionnaire applications because of necessities to adopt changing knowledge processes and inter-employees knowledge sharing is continuous. In a research performed by Zorlu (2011) in universities, it is stated that instructors are shy on creating by working together, being team member and academic cooperation. In fact, in the countries, innovative performance of which is high, instructors of universities are more successful in this issues. Level of implicit knowledge sharing and factors that affect this level can be some of the reasons of it. Thus, results to be obtained from the research may determine of the factors that affect implicit knowledge sharing attitudes of university personnel and may offer suggestions on the development of proactive precautions against problems that may occur.

In this respect, firstly a pilot application is carried out in AhiEvrans University with 60 academic and administrative personnel and afterwards, questionnaire forms that are prepared are sent to academic and administrative personnel of related universities in electronic environment over their registered in e-mail system of each university via Data Processing Departments. 243 forms are obtained



from 400 forms that are sent, in usable condition. Rate of return of surveys is approximately 62%. Demographic features of the ones participate in questionnaires is given in Table 1. It is observed that participants of the survey consist of 92,2% academic person-

nel and 53,5% male and nominal age group is under 50%. Within the scope of term of employment the first one is less than 5 years with 35,8% ratio and within the concept of academic titles, most of the participants are assistant professors with 23,9%.

Table 1. Demographic Features Of Participants Of Surveys

Features	F	%	Features	F	%
<b>Gender</b>			<b>Age</b>		
Male	130	53,5	23-30	70	28,8
Female	113	46,5	31-40	66	27,2
			41-50	62	25,5
<b>Position</b>			51-60	35	14,4
Academic	224	92,2	61+	10	4,1
Administrativeand Technical Staff	19	7,8	<b>Academicdegree</b>		
<b>Workinghours</b>			Prof.Dr.	42	17,3
0-5 yıl			Assoc.prof.	26	10,7
6-10 yıl	87	35,8	Assist.Prof.	58	23,9
11-15 yıl	32	13,2	Lecturer	40	16,5
16-20 yıl	33	13,6	Researchasistant	44	18,1
21+	30	12,3	İnstructor	18	7,4
	61	25,1	Academicexpert	15	6,2
<b>Total</b>	<b>243</b>	<b>100</b>	<b>Total</b>	<b>243</b>	<b>100</b>

### 3.3. Method Of Analysis

ANFIS (Adaptive Neuro-Fuzzy Inference System-Adaptive Neural Fuzzy Control system) is used within the scope of fuzzy logic to define inter-variables relationships in the

research. MATLAB packaged program is preferred for the analysis. In the application procedure; (1) firstly, correlation and regression values among variables are watched and prior knowledge is obtained for estimate modelling. This step is one of the elements



that differs this study from Lin (2008) in empirical scope. The idea of examining correlation values before modelling is not taken place in similar studies that are limited in numbers. Results that are obtained from the previous studies that include implementation of artificial intelligence methods on management filed are guiding in the preference of this step. This idea will also contribute to artificial intelligence users. (2) Rule base Sugeno is established according to fuzzy logic deduction system. (3) Blended learning algorithm is used for optimization. (4) Average Testing Errors are found within the direction of each hypothesis. (5) The number of membership functions equivalent to each variable by defining inputs and outputs for hypotheses is determined. (6) Each study of returned data is accepted as a learning phase. Parameters are updated to obtain optimal manners of rule bases and membership functions during phases. (7) The effect of input and output variables are tested in this phase. The data on input variable to be tested for minimizing error margin during learning phase are normalized and taken between (0) and (1). For each test, the number of iteration is used as 200 and 250. The method that is used in the study was used by Lin, 2008a; 2008b and Huang, Tsou and Lee, 2006 within the scope of different variables on knowledge management by not being normalized and success is achieved.

### 3.4. Limitations

The most important limitation in the study is the lack of similar studies carried out by using fuzzy logic method in the field of management and organization. Aforementioned method cannot be found in the Turkish sources in this field. Another limitation is that the university staffs who participate in the survey are reached by electronic mail. It is observed that this case has affected the return ratio of surveys in a negative way. Within the direction of these determinations, it will be supportive that contribution of usage of fuzzy logic in inter-variables relations with further similar studies within the scope of management discipline.

### 3.5. Fuzzy Logic Method And Its Advantages

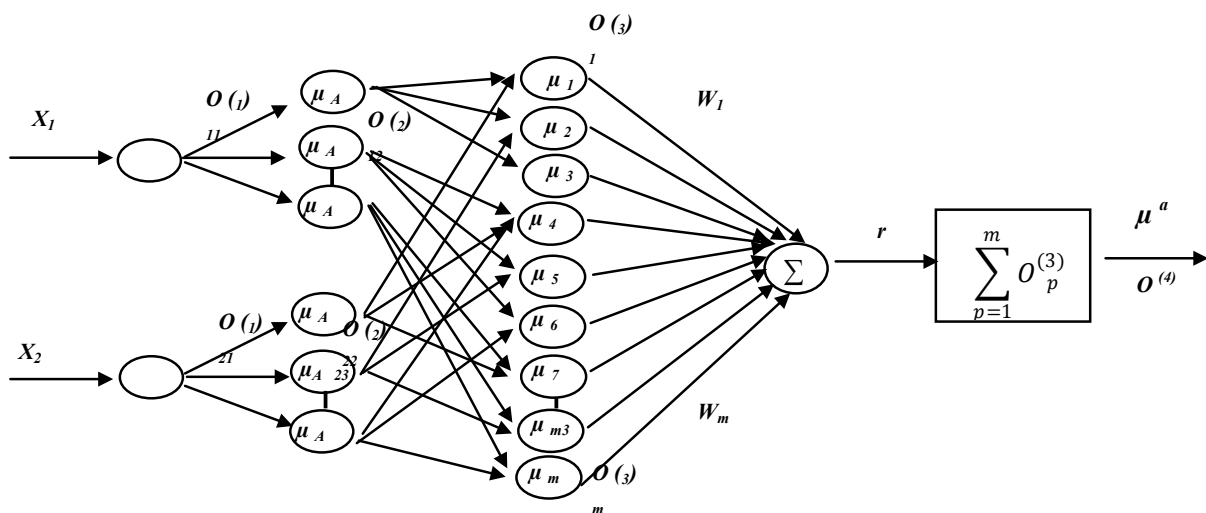
Fuzzy logic method is close to the manner of thinking of human beings and everything is ranked in a certain range (0-1). Fuzzy logic liken the acute world consisting of dual variables such as cold-hot, fast-slow, high-low to real world with more flexible qualifiers as less cold-less hot, less fast-less slow, less high-less low (Ertuğrul, 2004: s.157). Fuzzy logic can be applied to multivariate analyses. Not needing any mathematical model, it can be used in the solution of indirect problems. Degrading the data into a prior processing increases the speed. In spite of that, it is hard

to define rules and functions of membership during fuzzy logic process. Trial and error method is applied to define variables of membership functions (Elmas, 2007: s.188-191).

Three main phases can be mentioned in the applications carried out by fuzzy logic. Making fuzzy is Finding Rules and Clarification. In the step of making fuzzy the inputs are made fuzzy. By using membership functions established during rule finding phase fuzzy cluster is associated with other. Clarification is the converse of fuzzy output value into finalized output value (Şenol&Yıldırım, 2008).

Although fuzzy logic method is used in fields such as medicine, engineering, and chemistry frequently, it can be expressed that it is new in field of business administration. It can be observed that the studies in this context concentrate on marketing and finance (see:Eleren, 2007; Korukoğlu, Ballı&Korukoğlu, 2008; Çiflikli et. al. 2007) and the limited number studies on management and organization are expressed in knowledge management and human resources management (Lin, 2008a; 2008b; Akkoyunlu, 2008; Ertuğrul, 2004; Ballı, Uğur&Korukoğlu, 2009).

**Figure 3. The Structure OfANFIS Model Consisting Of Two Entries: (1) Input Layer, (2) Fuzzy Making Layer, (3) Rule Layer (4) Output Layer**



Source: Lin, 2008: 151



### 3.6. ANFIS Model

Adaptive Neural Fuzzy Control system known as ANFIS model of Jang was firstly used in 1993. This type of modelling takes “Sugeno Fuzzy logic deduction system” with a decision making process like human beings into consideration and in the application directed to artificial neural networks “Back-propagation Learning Algorithm” is used (Jang, 1993: 667). *Hybridlearningalgorithm* consisting of two methods is used in this study in defining model parameters.

### 3.7. Validity And Reliability Test

Factor Analysis is carried out to determine validity and reliability levels of the scales and expression in the research and Cronbach Alpha ( $\alpha$ ) coefficients are obtained. In the fac-

tor analysis that is performed with Varimax Rotation, the factors eigenvalues of which are over 1 is taken as basis. In this scope, in organizational culture factor, two factors, factor load of which are under 0,40 is removed from the analysis. Besides from this, it is observed that factor loads of all expressions adopted or developed are over 0,40. Moreover, Cronbach Alpha coefficients of the expressions take place in each factor are determined and not any factor with less than 0,70 Alpha value is observed. As per Nunnally (1978), in the events that Cronbach Alpha coefficients are over 0,70, it is stated that acceptable reliability level is reached. Scatter of the factors used in research, factor loads and Alpha coefficients are given in Table 2. After the factor analysis performed, expressions in centralization sub-factor are reverse coded.



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**Table 2.Results of Validity And Reliability Test**

FACTORS	Factor loads
<b>Tacit knowledge sharing (<math>\alpha</math>): 0,876</b>	
My colleagues share their experiences and occupational knowledge with me and other colleagues.	,850
My colleagues guide their world of knowledge to solve our problems.	,874
My colleagues share their knowledge and skills coming from their own learning-education process.	,882
The employees of our institution share the information who and where everyone can find the necessary information.	,809
My colleagues are willing on teaching us how the works are performed.	,805
I am prone to sharing knowledge and experiences that i have obtained with my colleagues	,662
<b>Negative conclusion expectancy (<math>\alpha</math>): 0,916</b>	
Employees are anxious about the fact that when they transfer their knowledge and experiences with others, the others will be more successful.	,861
Employees are anxious about the fact that when they transfer their knowledge and experiences with others, they may lose their present job or position.	,858
Employees assess the experiences and knowledge that just they have as their superiorities.	,839
Employees are anxious about the fact that when they transfer their knowledge and experiences with others, the interest of manager may decrease.	,821
<b>Positive conclusion expectancy (<math>\alpha</math>): 0,875</b>	
If employees share their knowledge and experiences with others, they may earn more trust in organization.	,797
If employees share their knowledge and experiences with others, they may earn more respect in organization.	,848
If employees share their knowledge and experiences with others, they may make more friends.	,811
If employees share their knowledge and experiences with others, the connection between them may strengthen.	,836
<b>Self-sufficiency (<math>\alpha</math>): 0,720</b>	
I feel that i am over qualified for the job i performed.	,631
I intent on the fact that my skills and abilities are equivalent or more than my colleagues.	,819



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My past experiences and successes increase my intent on that i can be more successful in this workplace. ,683

I can do the jobs harder than the current one. ,701

**Culture (α): 0,856**

Employees are willing to share their background and experiences. ,798

Employees are encouraged to share their experiences, backgrounds or creativity. ,748

Employees can discuss their problems and difficulties with their colleagues. ,852

Employees compete with the other members of organization. ,805

**Formalism (α): 0,740**

There are many explicit working rules and policies. ,501

There are explicitly defined duty procedures. ,787

There is a tight control mechanism periodically. ,583

**Hierarchy (α): 0,815**

Executives determine the working methods. ,902

Executives directly decide how the works shall be conducted. ,917

It is definite from whom the employees receive orders. ,674

**Centralization (α): 0,778 (Reverse coded)**

Employees have autonomy to perform their jobs. ,638

Employees participate in decision making process. ,653

Employees can produce solutions for more than one problems via different channels. ,676

**Reliance on administration (α): 0,931**

My executive is sincere on learning point of view of the employees in several issues. ,927

I can feel safe that my executive will try to treat in a fair way every time. ,951

My executive sees learning and knowledge transfer as a key value for development of employees. ,935

**4. Analysis Findings**

Firstly, correlation values are regarded within the scope of analysis. Accordingly, there is a negative relation between implicit knowledge sharing and negative conclusion ex-

pectancy (-,454 / p<0,01), formalism (-,290 / p<0,05) and centralization (-,491 / p<0,01) sub-factors and when organization structure is used as a single factor, a positive relation occurs (,376/ p<0,01); and it is determined that there is a positive relation between posi-



tive conclusion expectancy ( $.329/p < 0,01$ ) and reliance on administration ( $.553 / p < 0,01$ ). Looking at correlation values a meaningful relationship cannot be found among hierarchy, ( $0,30$ ), self-sufficiency ( $.065 / sig. ,177$ ) and implicit knowledge sharing. Thus, input and output values in connection with hypothesis are modelled and used as average testing error values. The decrease in test error values strengthens “accept” or “decline” position of the concerning hypothesis. In the figures given for each hypothesis, (+) represents input and (\*) output variables and the observed scattering helps the understanding of consistency level in relationship.

In this context, looking at the relationship between organization culture and implicit knowledge sharing, it is found out that the average testing error value is  $0.014$  and as per the scatter diagram obtained in Figure 4, there is a positive relation. Average testing error value's being significantly low and the scatter's being highly systematic are important in terms of its presenting the level of positive relation. As per this, Hypothesis 1 is supported.

Please see Figure 4 in the appendix.

Considering figure 5, it can be seen that there is a positive relationship between implicit knowledge sharing and organization structure (whole). Average testing error's being  $0,017$  is

significant as it shows that this relationship is strong and highly reliable.

Please see Figure 5 in the appendix.

On the other hand, for formalism, hierarchy and centralization that are sub-factors of organization structure, average testing error values are respectively ( $0.017$ ), ( $0.19$ ), ( $0,17$ ). It can be found out in Figure 5a that there is negative and meaningful relationship between implicit knowledge sharing and centralization and in Figure 5b the meaningful and negative relationship between formalism and implicit knowledge sharing. However, it is determined in Figure 5c that there is not negative and meaningful relationship between the level of hierarchy and implicit knowledge sharing. In this way, Hypothesis 2 on organization structure factors' having effect on implicit knowledge sharing is supported, for formalization sub-factor 2.1 and for centralization sub-factor Hypothesis 2.2 is supported, and hypothesis 2.2. is supported for hierarchy sub-factor.

Please see Figure 5a, 5band 5c in the appendix.

The relationship between tacit knowledge sharing and conclusion expectancy is examined within the frame of 3 Hypothesis. While average testing error value concerning total conclusion expectancy in which positive and negative conclusion expectancy is analysed together is  $0.0602$ , scatter diagram is given in



Figure 6. Thus, it is understood that there is strong and meaningful relationship between conclusion expectancy and tacit knowledge sharing. Looking at the average testing error values connected to positive and negative conclusion expectancy that are two sub-factors of conclusion expectancy, negative conclusion expectancy is as (0.119), and positive conclusion expectancy is as (0.111). Within the scope of Figure 6a and 6b, it is found out that there is a positive relation between intention of tacit knowledge sharing and positive conclusion expectancy; and there is a negative relationship between negative conclusion expectancy.

Please see Figure 6, 6a and 6b in the appendix.

When the scatter diagrams given in Figure 5a and Figure 5b and average testing error values are taken into consideration, it can be accepted that the negative relation between negative conclusion expectancy and tacit knowledge sharing is stronger than positive relation of positive conclusion expectancy. As per the obtained findings, Hypothesis 4, Hypothesis 4.1 and Hypothesis 4.2 are supported.

In Figure 7, the relationship between self-sufficiency and tacit knowledge sharing is presented. Here, the average testing error value is 0.280 and as it can be understood

from scatter diagram, a meaningful relation between two variables cannot be found out. In this case, Hypothesis 5 is supported.

Please see Figure 7 in the appendix.

Within the scope of the study, the relationship between level of self-sufficiency and positive and negative conclusion expectancies is also examined. Accordingly, it is determined in average testing error negative conclusion expectancy as 0.14 and in positive conclusion expectancy as 0.18. Scatter diagrams are given in Figure 7a and Figure 7b. From this point, while it is seen that there is negative and meaningful relationship between self-sufficiency and negative conclusion expectancy, it is understood that there is not a meaningful relationship between positive conclusion expectancy. Thus, while Hypothesis 5.1 is supported, Hypothesis 5.2 is not supported.

Please see Figure 7a and 7b in the appendix.

To test the hypothesis of the study, the relationship between reliance on administration and tacit knowledge sharing is analysed lastly. According to this, while the estimated relationship between two variables' average testing error value is 0.032, scatter diagram is found out in Figure 8. It is understood that there is strong and positive relationship between these two variables. Thus, Hypothesis 6 is supported.



Please see Figure 8 in the appendix.

## 5. Conclusion

When the purposes and the originality of the method that is used are taken into consideration, the findings that are obtained need to be assessed in two basic levels: in theory and application. In this framework, when the results that are concluded with the findings of the study and theoretical contributions are evaluated, these determinations can be stated on possible relations between used variables and tacit knowledge sharing. It is understood that Organization structure is a main effector or variable in the explanation of the alteration of tacit knowledge sharing integrally. It is observed in the study that sub-factors such as centralization and formalism discussed under organization structure have negative effect on tacit knowledge sharing and there is not a meaningful relationship with level of hierarchy. These conclusions are in parallel with the conclusions obtained from a similar method of analysis by Lin (2008) excluding a single sub-factor. On the contrary to the findings obtained in this scope, it is stated that level of centralization affect tacit knowledge sharing in negative direction. In other words, it is determined that the more the employees move away from centralization, the more their intention of tacit knowledge sharing decreases. This difference may arise from the fact that the study focuses on tacit knowledge

sharing rather than general knowledge sharing unlike the similar studies and that the questionnaire is applied to university staff rather than family businesses. The possibility of university staffs' being more sensitive on centralization and participation in decisions compared to manufacturing businesses can explain two different results concluded in similar analysis. The finding on the issue that increasing formalisation decreases tacit knowledge sharing is compatible with the conclusions obtained by Willem and Buelens (2009). Likewise, increasing levels of formalism in organization structure's preventing horizontal and cross relations inter-layer and it's generating unwillingness at a certain level for knowledge sharing by causing unnecessary waste of time in knowledge interchange are accepted as apparent reflections of the negative relations obtained from the study. Together with this conclusion, it is possible to explain the partial increases in tacit knowledge sharing level by informal system of organization. The case that there is not having a meaningful relationship between hierarchy sub-factor and implicit knowledge sharing may be because of the fact that the target group, that is largely instructors, are part of organization structures in which there is not strict and relatively several layers.

It is defined in individual factors group that there is a significant relation between conclu-



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sion expectancy and tacit knowledge sharing. The direction of this relationship changes as per the type of expectancy. It is possible to claim that if employees think that they will face with a loss or negativity with attitude of knowledge sharing, the level of sharing will decrease, and in the event that this expectancy is positive, this level will increase. The effect of positive conclusion expectancy on tacit knowledge sharing attitude is in consistency with the results of the study ( $r=0,38 / P<0,05$ ) carried out by Hsu et. al. (2007). However, reducing effect of negative expectancy on sharing intention is higher than increasing effects of positive expectancy. Negative conclusion expectancy's having more effect compared to positive conclusion expectancy can be explained with more detailed analysis of some negative expressions of participants on losing their current position. Furthermore, at this point, distinctive organizational conditions of university staff can be mentioned besides cultural context. Looking at Turkish society within the point of human resources applications, trust and loyalty come to the fore in selection of people rather than skills and abilities. This case reserves its influence in each phase of occupational life. Especially, in a cultural system in which power distance and level of avoidance of indefiniteness is high, the variables that affect tacit knowledge sharing are required to be evaluated by taking competition and race environment into

consideration (Sargut, 2010: 84-86). It is also expressed in the research conducted by Zorlu (2011) on university staff that participants are not willing enough on production of collective publications and the main reason for that is the wish of using obtained knowledge and experiences only for individual success.

Evaluating the findings that are obtained together, it can be claimed that the employees can be willing on knowledge sharing only when their levels of self-sufficiency increase and they rely on administration. For this reason, a meaningful relation between two variables, that are self-sufficiency and tacit knowledge sharing that take place within the scope of study, however, there is positive and meaningful relation between the level of reliance on administration and tacit knowledge sharing. But, it is understood that negative conclusion expectancy is decreased in the employees whose self-sufficiency level is higher, and positive conclusion expectancy also increases. Thus, it can be accepted that increase in self-sufficiency of employees can render the expectancy that is to be concluded with knowledge sharing positive. Thus, the findings of studies are important in terms of eliminating negative conclusion expectancy of employees by positive and high effect of both self-sufficiency and reliance on administration factors tacit knowledge.



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Within the direction of these evaluations, conclusions make it possible to offer modest suggestions for eliminating the barriers and increase in tacit knowledge sharing in universities. Especially, it can be claimed that universities' becoming prominent in intense competitive environment within institutional sense and its becoming stronger with its employees make is only possible by revealing tacit knowledge that can be shown as the most important power and knowledge source of organizations. In this sense, the following general declarations and suggestions can be made on the basis of inter-variables relations used in the study:

Taking organization structure, one of the aforementioned variables, is taken into consideration, it will be beneficial for executives to evaluate formalisation and centralization levels in organization in optimal level. It is understood that excessive formalisation affects tacit knowledge sharing in negative way even if each organization needs to be analysed individually within the frame of their conditions and structures. Besides this, it is required to be stated that excessive centralization that is to say that employees' becoming distant from the management and not participating in the significant decisions in relation with them also prevent tacit knowledge sharing that can be moving force of organization. Executives' designing these two elements in a

way that it will pave the way for tacit knowledge sharing among employees will be a significant acquisition in terms of organizational success.

Executives' evaluating conclusion expectancy, reliance on administration and self-sufficiency perceptions together that are individual factors that affect implicit knowledge sharing is important for obtaining faster and more positive results. Decreasing negative expectancies of employees such as their anxiety regarding losing their present positions, falling behind in competition or race, not being appreciated by executives as is in the past, and increasing positive expectancies that trigger synergy and cooperation is directly in association with reliance on administration and indirectly with level of self-sufficiency. For this reason, actualization of applications and decisions that may increase level of self-sufficiency of employees and thus decreasing negative expectancies and having warm relationships based on trust can be shown as basic tools that may increase tacit knowledge sharing.

The findings obtained from the study shall be assessed empirically. When the method of analysis used in this study is taken into consideration, it has the characteristic of being first academic study in management-organization field in the sense of Turkish literature. It is understood that fuzzy logic method used



in application phase and “Adaptive Neural Fuzzy Control system” preferred within this scope can be used in estimation of the relationships between organizational variables. However, being assumed as quite new in terms of organizational researches, Fuzzy Method has some limitations besides its advantages. These are:

(1) it is seen that the results of the analysis are in parallel with the results obtained from Lin (2008). It is observed that the data's not being normalized in Lin (2008) causes high average testing error values in the study. With reference to both studies, it can be said that the size of sample decrease the error value in fuzzy logic method. (2) Not having a definite method in the choice of membership functions in fuzzy logic method, finding most suitable method by using trial-error method and selection of learning algorithms, necessity of minimizing error value by defining suitable number of iteration may take more time as per statistical methods as correlation and regression. (4) In the event that more than one variable is chosen as input, estimations of inter-variables relationships can be realized with the help of changes in error value when participation of each variable in model. It can be claimed that preference of a single input and relationship between single variable can increase level of reliance for generation of

more consistent results in inter-variables relationships of fuzzy logic method.

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## ÖRTÜK BİLGİ PAYLAŞIMINI ETKİLEYEN BİREYSEL VE ÖRGÜTSEL FAKTÖRLERİN BULANIK MANTIK YÖNTEMİYLE ANALİZİ

**Öz:**Günümüz örgütleri açısından sürdürülebilir başarı, bilginin gizlenmesi ya da kaçırılması yerine gerekli bilgiyi açığa çıkaran ve çalışanları ortak bir paydada buluşturabilen paylaşımcı bir örgüt atmosferi ile sağlanabilir.Çalışanların deneyim, beceri ve eğitimleri sonucunda elde ettikleri bilgiyi açığa çıkarmamaları ve paylaşmaktan kaçınmaları irili ufaklı pek çok örgütteki yöneticilerin adeta kalıtsal problemlerinden birisi haline gelmektedir.Çalışanların eğitim, yetenek ve tecrübelerini yansıtan örtük bilginin gerektiği gibi açığa çıkarılmaması, yetişmiş insan kaynağının tüm kazanımları ile kaybedilmesine ve yeni örgüt üyelerinin bu bilgiden mahrum kalmasına neden olabilmektedir. Bu sebeple yöneticilere düşen temel görevlerden birisi örtük bilginin paylaşımına ve kullanımına işlerlik kazandırabilecek karar ve uygulamaları hayata geçirmek ve bu sürece etki eden olumlu ve olumsuz faktörleri kontrol ederek doğru bir biçimde yönlendirebilmektir. Bu çalışmanın iki temel amacı bulunmaktadır. (1) Örgütsel ve bireysel bazı faktörlerin örtük bilgi paylaşımında nasıl ve hangi düzeyde etkiye sahip olduğunun belirlenmesi; (2) Bulanık Mantık yönteminin bir tahmin aracı olarak değişkenler arası ilişkilerin irdelenmesinde kullanımına yönelik tespit ve öneriler geliştirilebilmesidir. Çalışmada bilgi paylaşım niyeti yerine daha özel ve sınırlı olmak üzere örtük bilgi paylaşım davranışı bağımlı bir değişken olarak ele alınmaktadır. Çalışmanın diğer değişkenleri olarak örgüt yapısı ve kültürü, olumlu ve olumsuz sonuç beklentisi, öz-yeterlilik ve yönetime güven bağımsız değişkenler olarak kullanılmıştır.Özellikle olumsuz sonuç beklentisinin ilk kez bu çalışmada kullanılması çalışmanın özgünlüğü açısından önemli kabul edilebilir. Zira veri toplanması sırasında katılımcıların subjektif değerlendirmelerinin olumsuz ifadelerin gizlenmesine ve genel değerlendirmeye yansımamasına neden olabildiği görülmektedir. Bu sebeple olumlu sonuç beklentisinin yanı sıra olumsuz sonuç beklentisinin de ölçümde yer alması katılımcıların iş yaşamlarındaki duygu, düşünce ve beklentilerinin iki farklı açıdan ortaya konulabilmesine imkân tanımaktadır. Çalışmanın önemini artıran temel hususlardan birisi de kullanılan analiz yönteminin özgünlüğüdür. Araştırmada değişkenler arası ilişkileri belirlemek



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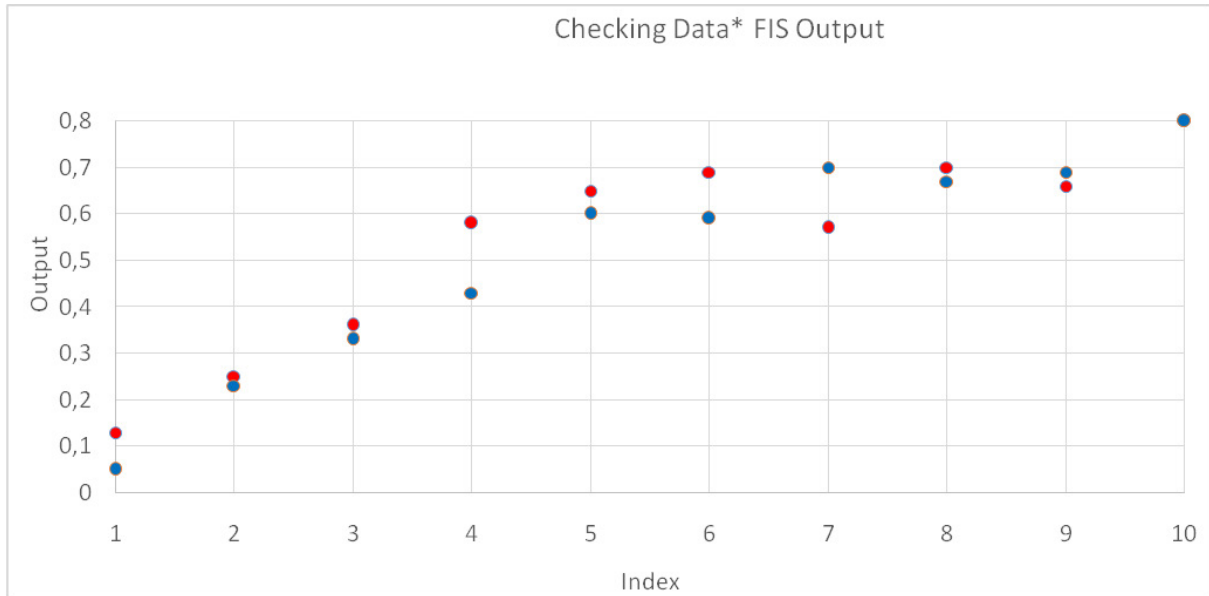
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üzere Bulanık Mantık yöntemi kapsamında ANFIS (Adaptive Neuro-Fuzzy Inference System- Uyarlamalı Sinirsel Bulanık Denetim Sistemi) kullanılmıştır. Çalışma kullanılan analiz yöntemi göz önünde alındığında Türkçe yazın açısından Yönetim-Organizasyon alanındaki ilk akademik çalışma olma özelliğini taşımaktadır. Analiz için MATLAB paket programı tercih edilmiştir. Çalışma bu yönüyle Türkçe yazında ilk olma özelliği taşımaktadır. Çalışma kapsamında verilerin toplanması için anket tekniği kullanılmış ve 5’li Likert ölçeği yer almıştır. Ankette demografik özellikleri belirlemeye yönelik sorular ve değişkenlerin ölçümünde kullanılan ifadeler yer almaktadır. Anket uygulaması Gazi, Kırıkkale ve Ahi Evran Üniversitelerinin çalışanları üzerinde gerçekleştirilmiştir. Bilgi odaklı hizmet ve çalışma usulleri olması, değişen bilgi süreçlerine uyum gösterme zorunlulukları ve çalışanlar arası bilgi paylaşımının süreklilik arz etmesi sebebiyle anket uygulaması için üniversiteler tercih edilmiştir. Elde edilen bulgulara göre uygulama kısmında kullanılan Bulanık Mantık yöntemi ve bu kapsamda tercih edilen “Uyarlamalı Sinirsel Bulanık Denetim Sistemi”nin örgütsel değişkenler arasındaki ilişkilerin tahmin edilmesinde kullanılabileceği anlaşılmıştır. Ancak Bulanık Mantık yönteminin değişkenler arası ilişkilerde tutarlı sonuçlar üretebilmesi için tek bir giriş ve tek bir değişken arasındaki ilişkilerin tercih edilmesinin güven düzeyini artıracığından söz edilebilir. Ayrıca üniversitelerde örtük bilgi paylaşımını etkileyen belirli örgütsel ve bireysel değişkenler bulunmaktadır. Bu yüzden rekabet edebilirliğin temel bir ölçütü kabul edilen örtük bilgi paylaşımının istenilen seviyeye getirilebilmesi bakımından bu değişkenlerin kontrol altında tutulması gerekmektedir. Nihai olarak çalışma kapsamında Bulanık Mantık yönteminde başarı sağlandığı, olumsuz sonuç beklentisi, merkezileşme ve biçimselleşmenin bilgi paylaşımında negatif, diğer faktörlerin ise pozitif yönde etkisinin olduğu anlaşılmıştır.

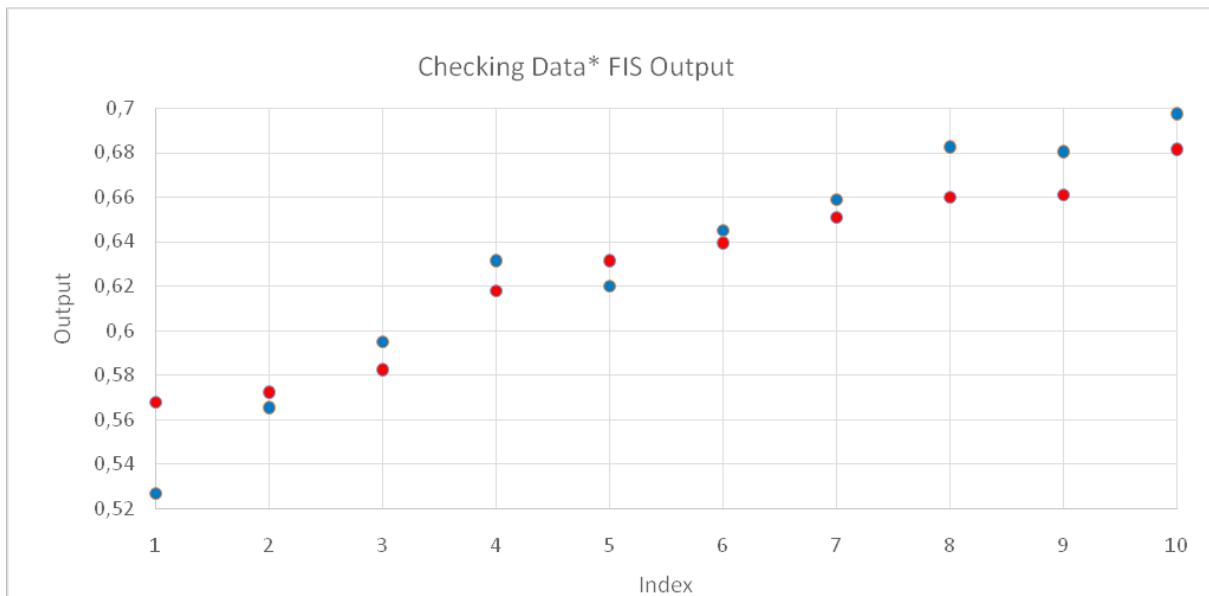
**Anahtar Kelimeler:** Bilgi Yönetimi, Örtülü Bilgi, Bulanık Mantık

## APPENDIX

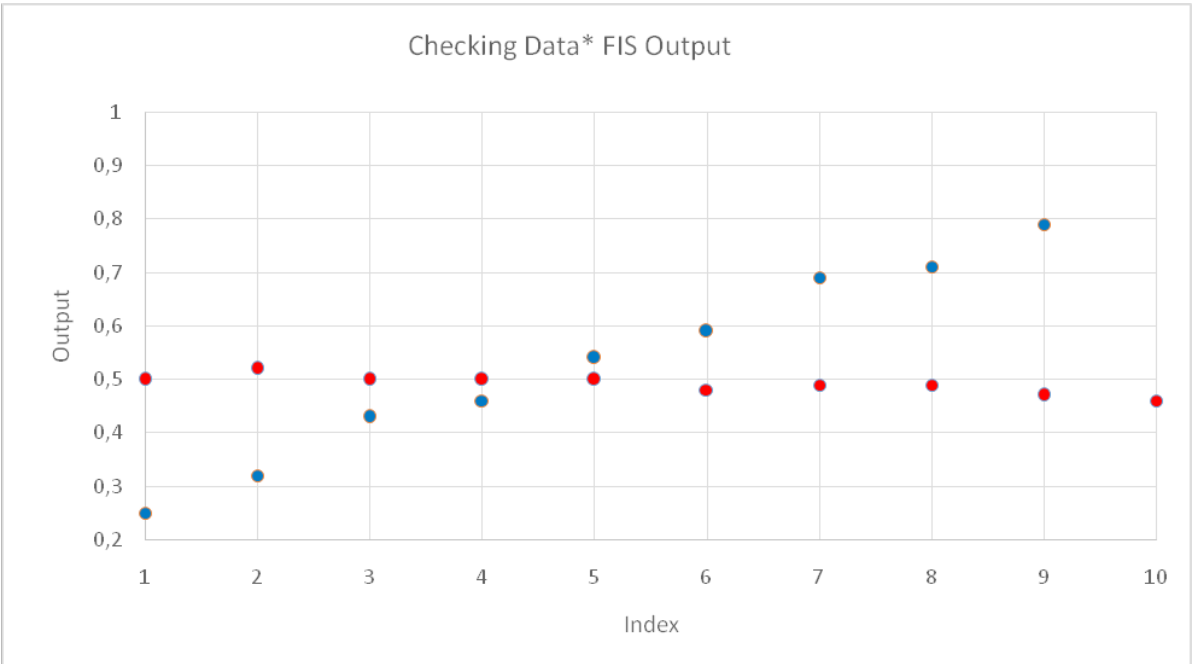
**Figure 4. Scatter Of Relationship Between Organization Culture And Tacit Knowledge Sharing**



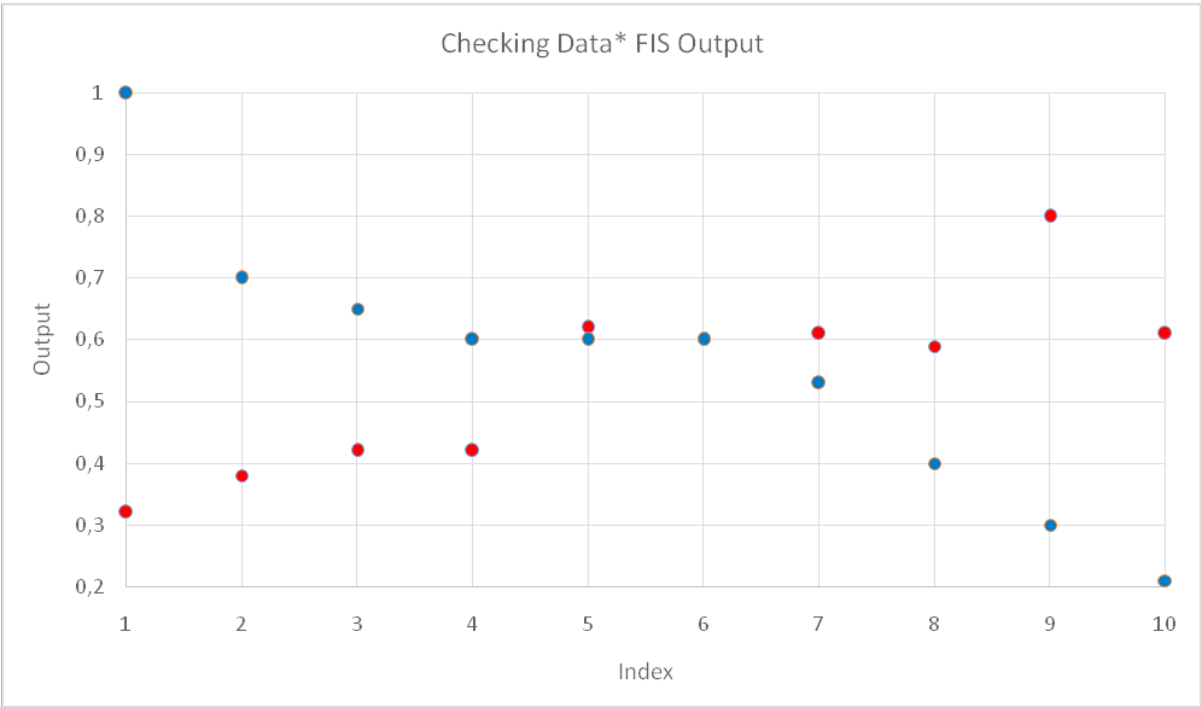
**Figure 5. Scatter Of Relationship Between Organization Culture And Tacit Knowledge Sharing. Inputs (a) “Formalism”, (b) “Hierarchy”, (c) “Centralization”**



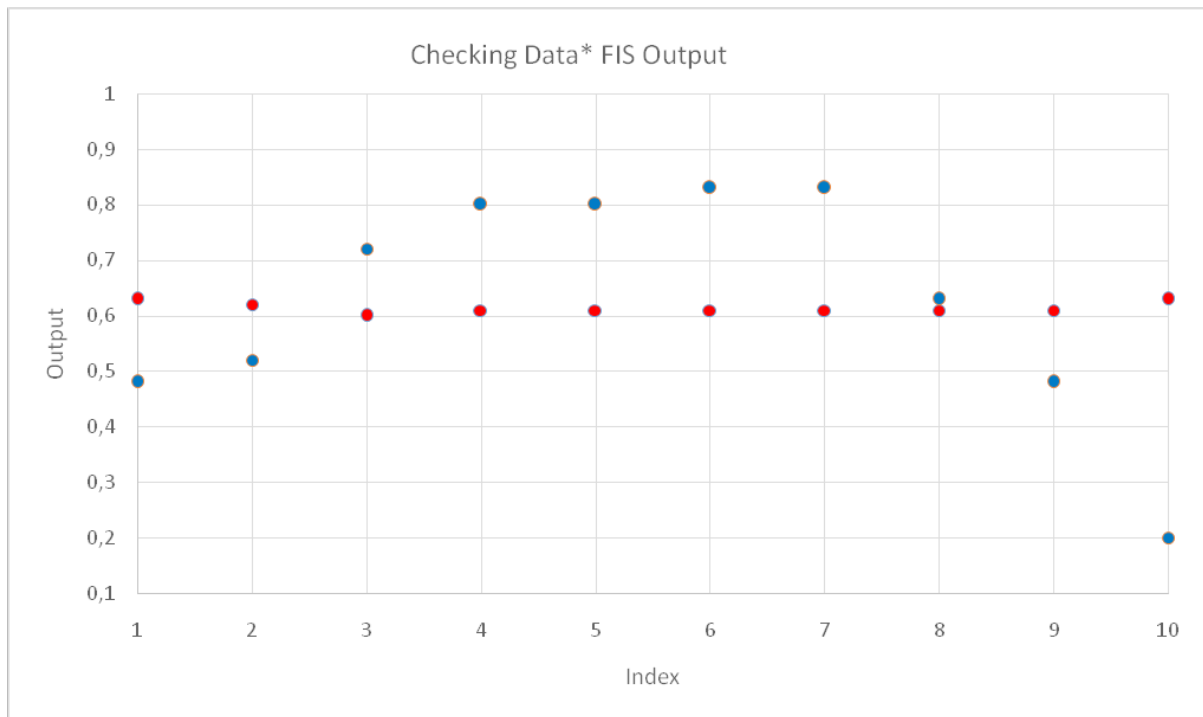
**Figure 5a. Relationship Between Tacit Knowledge Sharing And Level Of Centralization**



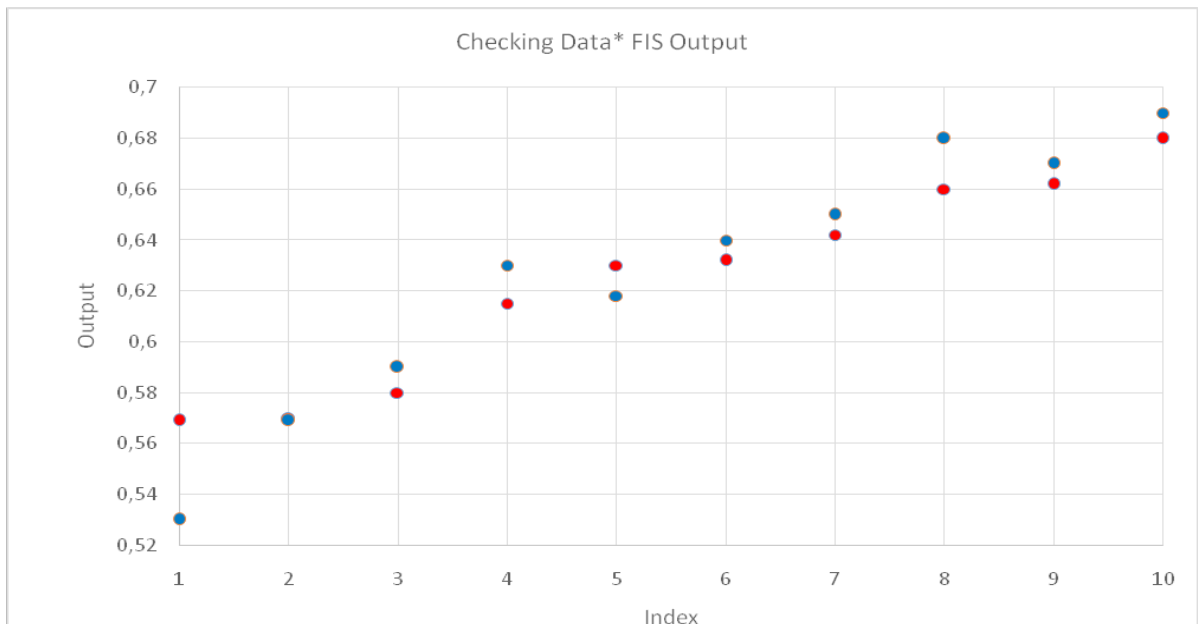
**Figure 5b. Relationship Between Tacit Knowledge Sharing And Level Of Formalization**



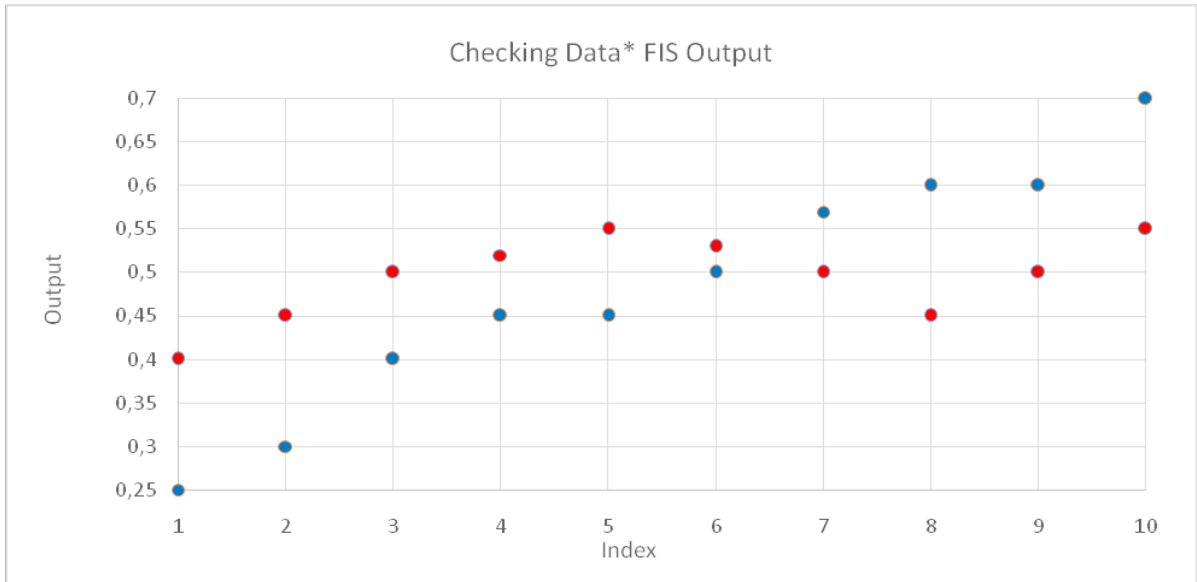
**Figure 5c: Relationship Between Tacit Knowledge Sharing And Level Of Hierarchy**



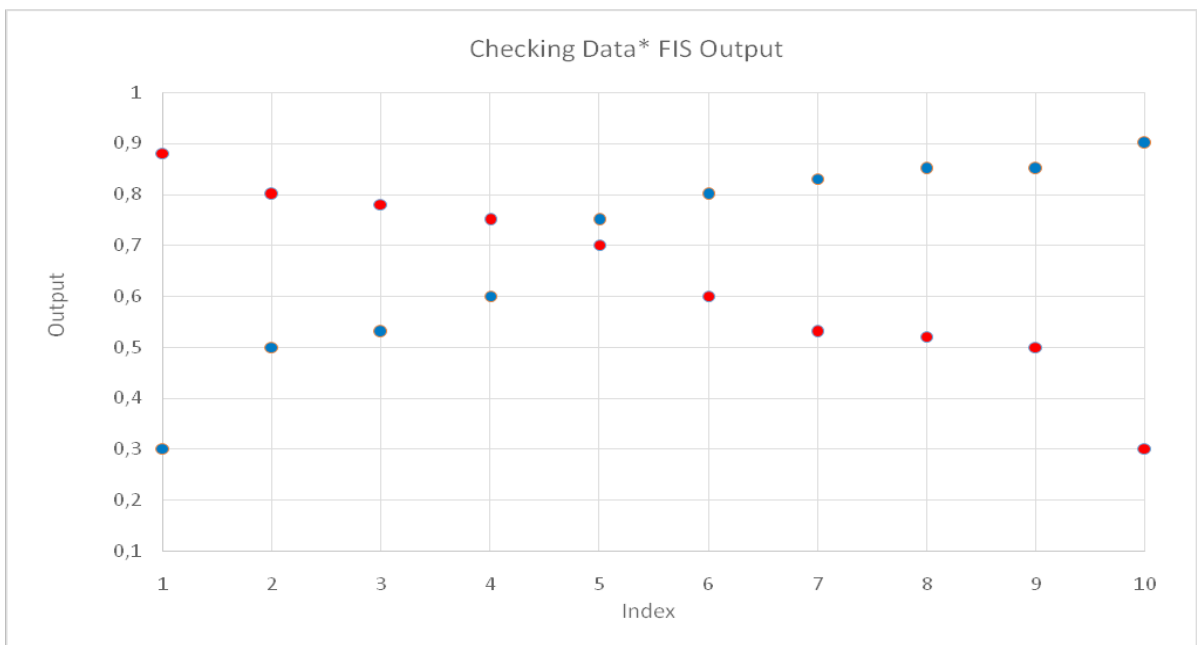
**Figure 6. The Relationship Between Conclusion Expectancy And Tacit Knowledge Sharing.**



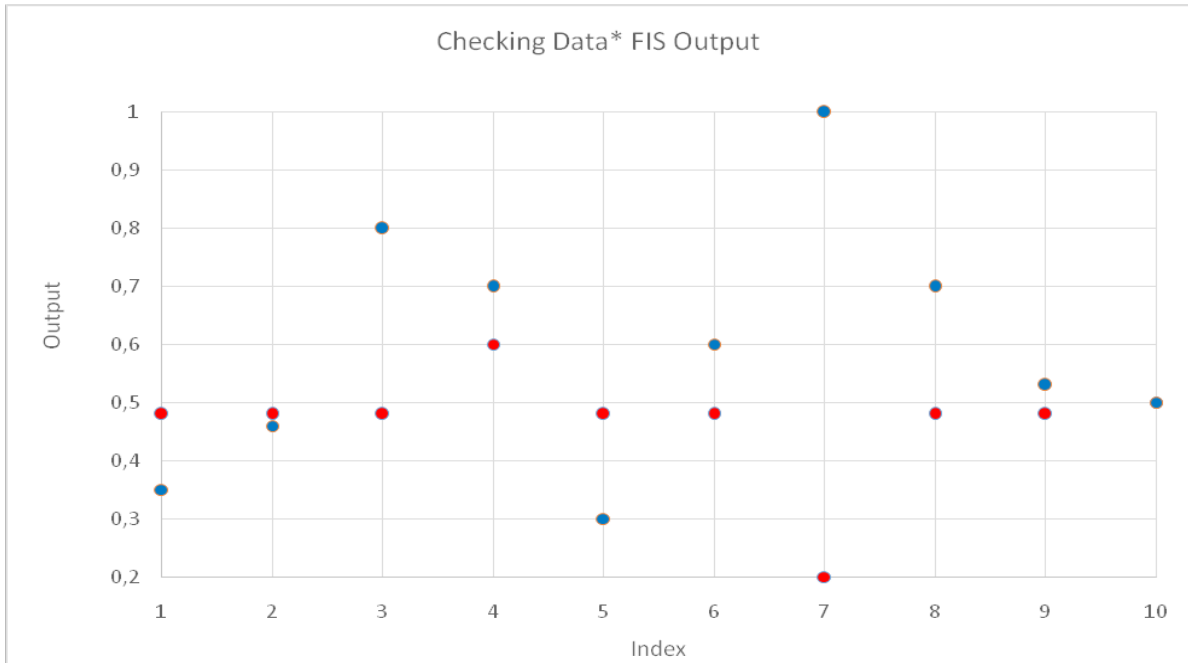
**Figure 6a: The Relationship Between Positive Conclusion Expectancy And Tacit Knowledge Sharing.**



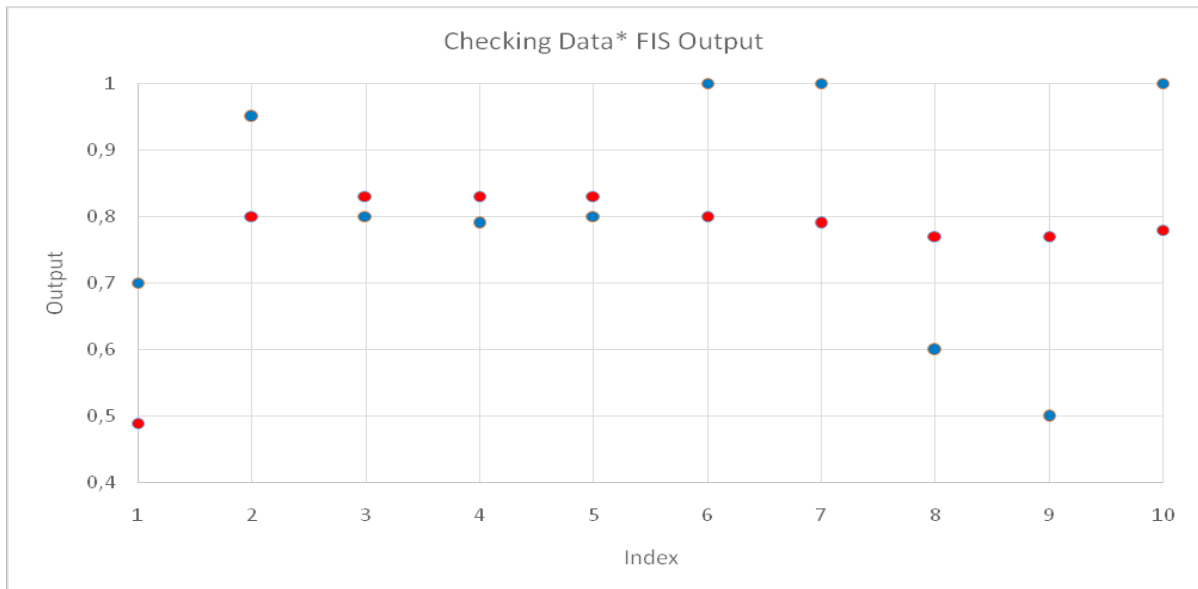
**Figure 6b. The Relationship Between Negative Conclusion Expectancy And Tacit Knowledge Sharing.**



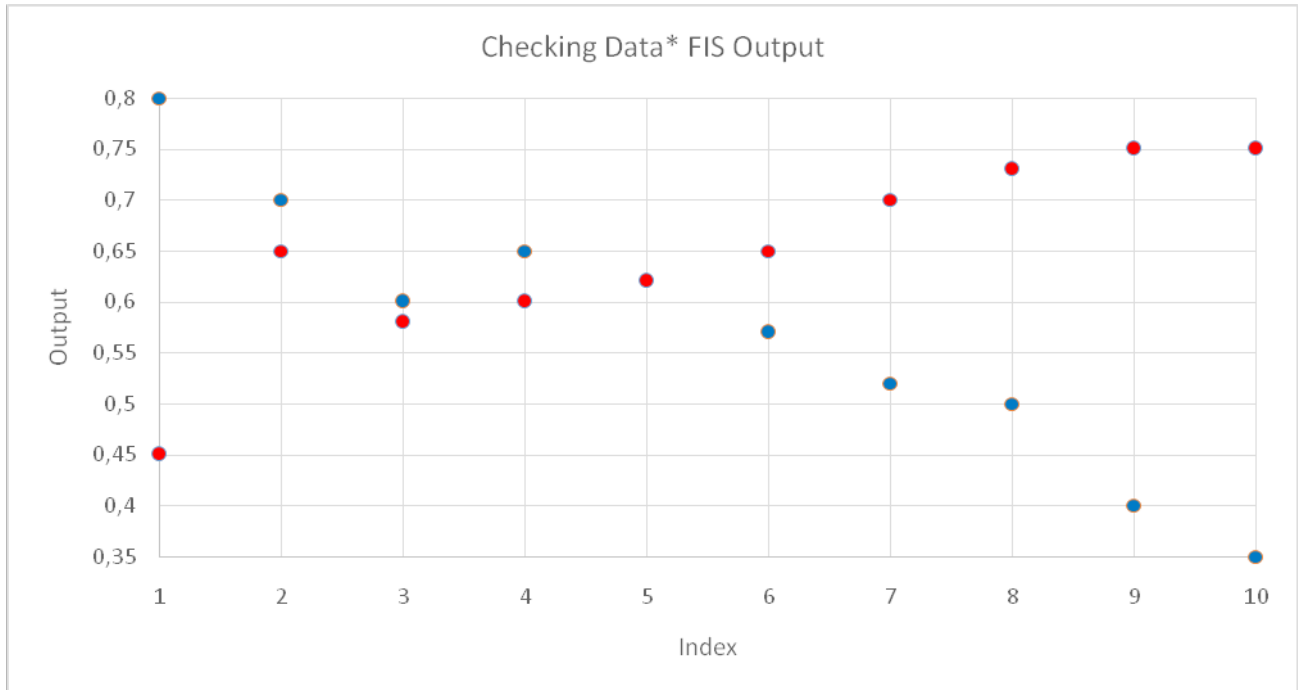
**Figure 7. The Relationship Between Level Of Self-Sufficiency And Tacit Knowledge Sharing**



**Figure 7a. The Relationship Between Level Of Self-Sufficiency And Positive Conclusion Expectancy**



**Figure 7b. The Relationship Between Level Of Self-Sufficiency And Negative Conclusion Expectancy**



**Figure 8. Scatter Of The Relationship Between Reliance On Administration And Tacit Knowledge Sharing**

