Araştırma

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An Attempt to Develop A Scale on the Decision Process: The Manager Decision Time Scale

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ABSTRACT

The aim of this study is to develop a valid and reliable data-obtaining tool for exploring which decision stage deems sufficient for managers in the public or private sector, how they use time and how they act in different occasions. Also, a scale demonstrating the approaches which managers are following in their decision processes has not been seen among past studies. This study has been carried out in order to close this gap. The scale has been developed in consideration of the managers' recommendations about the decision process. Sampling method applied in research is easy sampling method. The 389 participant of this study consist of public and private sector managers in the cities of Gümüşhane and Bayburt in Turkey. The results of this study are assembled under four factors as "manager's problem noticing time, manager's problem defining time, manager's problem solving time, and the manager's decision time on different occasions." A "Manager Decision Time Scale" containing 13 items has been developed from these Likert scale factors. It has been tested for validity by Model-Defining Factor Analysis. The scale that was formed with the data obtained at the end of this study has been proved to be a valid and reliable data-obtaining tool.

Keywords: *Management, manager, decision process, decision time scale*

Karar Süreci Üzerine Bir Ölçek Geliştirme Denemesi: Yönetici Karar Zamanı Ölçeği

ÖZ

Bu çalışmanın amacı; kamu sektörü ve özel sektör alanında faaliyet gösteren yöneticilerin karar sürecinin hangi aşamasına kadar gelmeyi yeterli gördüklerini, karar sürecindeki zamanlarını nasıl kullandıklarını ve değişik durumlar karşısında ne zaman karar aldıklarını ortaya çıkarmak amacıyla, geçerli ve güvenilir bir veri toplama aracı geliştirmektir. Geçmişte yapılan çalışmalar içerisinde yöneticilerin karar sürecinde zamanı nasıl kullandıklarıyla ilgili bir çalışmaya rastlanmamıştır. Çalışma literatüre bu konuda katkı yapmak amacıyla planlanmıştır. Ölçeğin geliştirilmesi aşamasında yöneticilerle görüşmeler yapılmıştır. Araştırmada kolayda örnekleme yöntemi uygulanmıştır. Araştırmanın çalışma grubu Gümüşhane ve Bayburt illerinde faaliyet gösteren kamu ve özel sektörde çalışan 389 yöneticiden oluşmaktadır. Bu çalışmanın bulguları ölçeğin, "yöneticinin sorun bildirme zamanı, yöneticinin problem tanımlama zamanı, yöneticinin problem çözme süresi ve yöneticinin farklı vesileyle karar verme zamanı" adıyla adlandırılan dört faktör altında toplandığı görülmüştür. 13 maddeden oluşan "Yönetici Karar Süresi Ölçeği" geliştirilmitir. Likert tarzı ölçeğin geçerliliği Keşfedici Faktör Analizi ile test edilmiştir. Çalışmanın sonucunda elde edilen veriler ölçeğin geçerli ve güvenilir bir veri toplama aracı olduğunu kanıtlamıştır.

Anahtar Kelimeler: *Yönetim, yönetici, karar süreci, karar zamanı ölçeği*

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I. INTRODUCTION

The management is a process consisting of planning, organizing, directing, coordinating and supervising the resources in order to realize the pre-determined objectives, under consideration of the environmental factors. Managers must make decisions at all stages of this process. Making the decision is the most important activity the manager has to do. At the same time, the use of time during the decision process directly affects the results of the decisions.

Simon, known for his work on decision making, emphasized that the analysis of the decision making process is required to be investigated under three sections (Campitelli, Gobet 2010). The first one is that human decisions cannot be predicted by logic only; instead, they can be predicted by means of statistical or any formal model or experimental research. The second is that three factors are required to be taken into consideration in decision making, which are type of duty, characteristics of environment, and different properties of the cognitive system; and that in these three factors, decision making depends on previous knowledge and competency of the decision maker. The third one is that if a formal model has been developed for decision making processes by collection of experimental data, it must be compared with estimations of human behaviors. In this regard, the present study models the manager decision making process by means of statistical data obtained by experiment; and strives to introduce an alternative interpretation and different approach to the manager decision making process.

Managers are viewed as decision makers because organizations can act in the world through their "decisions" (Laroche 1995). On the other hand, Laroche (1995) has stated that managers are people who make decisions and that the members of an organization are surrounded by the decisions concerning the process. "Decisions" correspond to concrete and symbolic expressions (Laroche 1995). Based on this perspective, if influence area of the decisions taken in an organization is considered, decisions are required to be evaluated within an extensive framework.

The analysis of the decision process confronts us with this fundamental proposition in organizational theory: *"the organization of a process affects the efficiency of this process"* (in terms of determined targets of the organization) (Witte et al. 1972). Results of the final decision, special status of organizational processes will mean that these basic propositions constitute decision processes in various degrees of their different organizational forms. There are decision processes which are structured differently. In this case, decision processes can only be proved by experimental researches (Witte et al. 1972). The structuring of decision problems includes the definition of results which constitute decision options in relation to decision targets. Decision analysis usually reveals results concerning the selection of preferences based on a decision strategy by evaluating options and indeterminate events which can affect their outcomes (Farquhar, Pratkanis 1993). Hence, effective functionality of the decision processes would arise all elements in the process (individuals, ideas, physical conditions, and etc.) or decision options (alternatives) would eliminate uncertainties. In case decision makers (individual or collective) have multiple targets or criterions, they face with multiple options (the most common situation). In these situations, the decision-maker generally faces more alternatives than one. Hence, if there was single option, there would not be need for structuring a decision problem; in this regard, the process is rather complicated (Paniagua, Crespo 2012).

The decision process is directly related to the need to solve the problem or to make a decision. In the resolution of decision problems, accuracy of choices made for decision making depends on the steps taken along the decision making process (Conteh 2009). Each step taken within the decision mechanism and each stage progressed would have influence on positive outcomes of the decision taken. That is, every problem is an opportunity at the same time. The manager has to create the means to evaluate his own faults, the factors leading to the problems, and to watch for the opportunities in the future where he can make use of his experience.

This study has built a valid and reliable "Manager Decision Time Scale" for the literature. The study has three sections. In the first section, a conceptual frame has been drawn for the study as a structural foundation. The second section is allocated to related previous research. In the final section, data and findings which are obtained by this study are discussed and suggestions for future research are made.

II. CONCEPTUAL FRAMEWORK

Decision-making is at the heart of management action. Simon was interested in the mechanism of the decision making process and emphasized that a decision maker is required to consider and evaluate results by making comparison. It is underlined with any decision process that while evaluating results of a central problem, managers should be fully informed about all incidents and their possible outcomes (Pomerol, Adam 2004). Asemi et al. (2011) emphasized in their study that in order to increase organizational performances of all managers in the organization hierarchy, in terms of accuracy of their decisions, they need appropriate data and information. This result reveals that there is proportional correlation between the subject (incident-status) on which managers need to make decision and their knowledge levels regarding the issue in order to give the right decision.

In fact, decision problems are essentially about getting the best choice from a pile of applicable options (Herrera et al. 1996). Al-Tarawneh (2012) reports in his study while describing decision process that there must be a basic root cause, restrictive assumptions, organizational boundaries, and interfaces in the process at the most minimal level; and that it is necessary to determine problems of all stakeholders of the system; selected options in applied decision making tools are required to validate the necessities and targets of the decision problems. An unavoidable reality of decision making is that options are inconsistent. This inconsistency may cause change in options and applicability over time. In this regard, change must be accurately determined in this process (Busemeyer, Townsend 1993). From this point of view, Huber et al. (2011) investigated their positive- negative status of them while making selection among alternatives and their indecisiveness status; and emphasized that evaluation of their decision results depends on positivity – negativity dimensions in their decision making process. Payne (1976) constructed a linear model in his study, which can contribute to the accuracy of early decisions. In this model, each alternative is assessed individually in a selection set; the selection process among alternatives is handled multi-dimensionally. Each dimension of each alternative was evaluated through objectivity or subjectivity values. Then, these components are combined according to their alternative value contribution so that the alternative with the highest value could be selected.

As a result, time is significantly effective on the processes of proper decision-making (Parent 2010). There would be limited time in assessment and application of some decisions. In such a limited-time case, an upper-limit can be constructed by means of available resources (information). Therefore, some strategies (methods) can be sacrificed (Beach, Mitchell 1978). Pollay (1970) emphasized in his study that time is a short resource for

managers and it is necessary to structure decision problems for effective usage of their time. To that end, managers need to know the changes that occur in the decision time under different conditions; and number and also the quality of alternatives in the hands of managers depend on alternatives produced by other members of the organization.

This circumstance reveals that accuracy of a decision should not be assessed by only their outcomes; also the timing of the question is substantially important. Nevertheless, time spent while making this decision or opportunities that they postponed or renounced could have caused missing some other more valuable opportunities. From this perspective, the right thing for managers is to make right decision at the right time.

III. LITERATURE REVIEW: PRESENT STUDIES

The origins of the decision making perspective and "constructive" opinions of decisions are required to be questioned (Laroche 1995). By taking previous studies oriented on this perspective into consideration, these constructive opinions concerning decision making process were listed below.

In the present literature of decision making research, the time factor as an important variable of decision making is ignored (Trull 1966). However, the concept of "time" in the decision process is the most important condition in assuring competitiveness and survival (Sabuncuoğlu et al. 2010). Ken Iverson, the CEO of Nucor Steel Corp, elaborated why good managers make bad decisions. Iverson has stressed that the best managers from Harward University can make bad decisions at 40% of the time, and an average manager can make bad decisions at 60% of the time (McCormack 2001). Saleem et al. (2011) focused on time pressure in decision making in their study. They underlined two important factors while analyzing this pressure. The first one is that decision strategy of decision makers (according to decision codes and intuitional decision) is superior in necessary circumstances. The second one is that they emphasized the ultimate decision made by a decision maker by comparing alternatives based on evidences. Finally, they indicated that time pressure has a significant effect on individuals' decisions. Galotti et al. (2006) stated in their study that different individuals have different decision approaches. It was reported that these personal differences do not arise immediately; instead, decision makers react to decision and its process by making plans to determine their individual targets and apply them as decision making is covering extensive stages. Trull (1966) expressed success in decision making in his study as whole of variables of decision quality and application. He also strived to shed light on an optimum time aspect which can maximize success rate of decisions. Moreover, the quality of the decision is determined by the time aspect and the knowledge level (corrective and destructive information), amount of available time and information, and application time. White et al. (1980) studied group decision making processes within three groups; and found that group experiences were utilized in order to develop solutions for managerial problems by developing conceptual understanding toward them. Finally, it was found that decision making process of complex problems affect application initiatives in an increasing way. From this perspective, the researchers indicated that managers, auditors or leaders are required to organize meetings for planning activities along the structural process in their limited time frame. They suggest that this clarifies the definition of problems and the steps to be followed along the problem solving process. Vroom and Jago (1974) emphasized in their study that if a leader (manager) is not competent to resolve a problem and lacks necessary knowledge and skill, it is necessary to resolve problems through communication among subordinates; and this situation would increase quality of the decision substantially. If a problem or problems have equal effect on subordinates, they will even offer opportunities to influence the decision.

Rogelberg et al. (1992) developed "the ladder technique" in their research they conducted about efficient group decision. The ladder technique is devised for improving group decision by structuring the members of a core group with certain entries. The ladder technique suggests three steps for a group of four persons. First, two members work together on the present problem. Then, the third member joins this core group and offers solutions for the same problem. By adding the third member to the group, an environment of three-person discussion is provided. Finally, a fourth member joins the core group and he too offers his own solutions for the problem. By this way, a four-person discussion is achieved for making a final group decision towards the target. According to Nutt (1984), the definition of the problem constitutes the foundation of the management paradox. It indicates that existing problems in terms of hierarchal relationships can be viewed by systems. Furthermore, it was reported that all systems include numbers of smaller systems; and it is possible to consider them part of a larger system. Safi and Burrell (2007) investigated decision making skills of managers and leaders for international development. They remarked that managers can consult their subordinates so that they can debate important facts and assumptions once more to collect more information. They reported that most of the time, emotional and ineffective performances of human beings could result in a dead end; and in this case, they can focus on differences between opposite positions. That is, they can investigate underlying tensions by asking about the assumptions; and they can put their crew into the right track. They can create mutual value and cooperation areas in critical subjects. In decision making, professionals who are equipped with critical thinking can ask questions by collecting opinions of various groups in order to assess complex problems; and rational decisions can be made by weighting presented evidences supporting opinions. Hence, decisions made rationally can contribute to the growth, survival and renovation of the organization. Armesh (2010) investigated the decision making process in his study in five stages: *"1) Definition of problem or opportunity, 2) Developing an alternative, 3) Evaluating the alternative, 4) Selecting and application of the best alternative, 5) Evaluation of the decision"*. In this process, it was emphasized that managers are before either a problem or an opportunity when there is no clear line of distinction between problem and opportunity; and that it is important to consider the reasons underlying these problems (or opportunities) while defining a problem (or opportunity) from this point of view. Pinfield (1986) evaluated the organizational decision making process in terms of structural and anarchic point of view: *"(1) the conceptual and empirical definitions of what constitutes a decision; (2) the extent of participant consensus on goals and the means used to accomplish those goals; (3) how participation is included as an attribute of the decision proces; (4) how the organizational context influences decision processes; and (5) how time is incorporated into each perspective"*.

Newman et al. (1967) examined the decision making process in four different parts: *"making a diagnosis and defining the problem, (b) arriving at alternative solutions, (c) analyzing and comparing alternative courses of action, and (d) selection of a solution"* (Reported by Summers, White 1976). Shnits (2010) has stated the basic targets of the stages in the decision process as *"selection of the most appropriate scheduling policy for the current system state''*. Based on this perspective, decision processes has been investigated under different titles; the majority of these studies aim to create an organization schema concerning basic reasons of poor or superior effectiveness in the decision process. In the research conducted by McFarlin et al. (1992), on American multi-national company managers, it was found that Spanish managers only gave advice to employees, managers from America and Holland were more eager to listen to the recommendations of employees, and American managers attach more importance to making joint decisions. As an example, in their research on individuals Leykin and DeRubeis (2010) have pointed out that there is a relation between individuals' psychological conditions and their decision processes. Nutt (1976) reported in his study that supporters of "human relationships" are of the opinion that

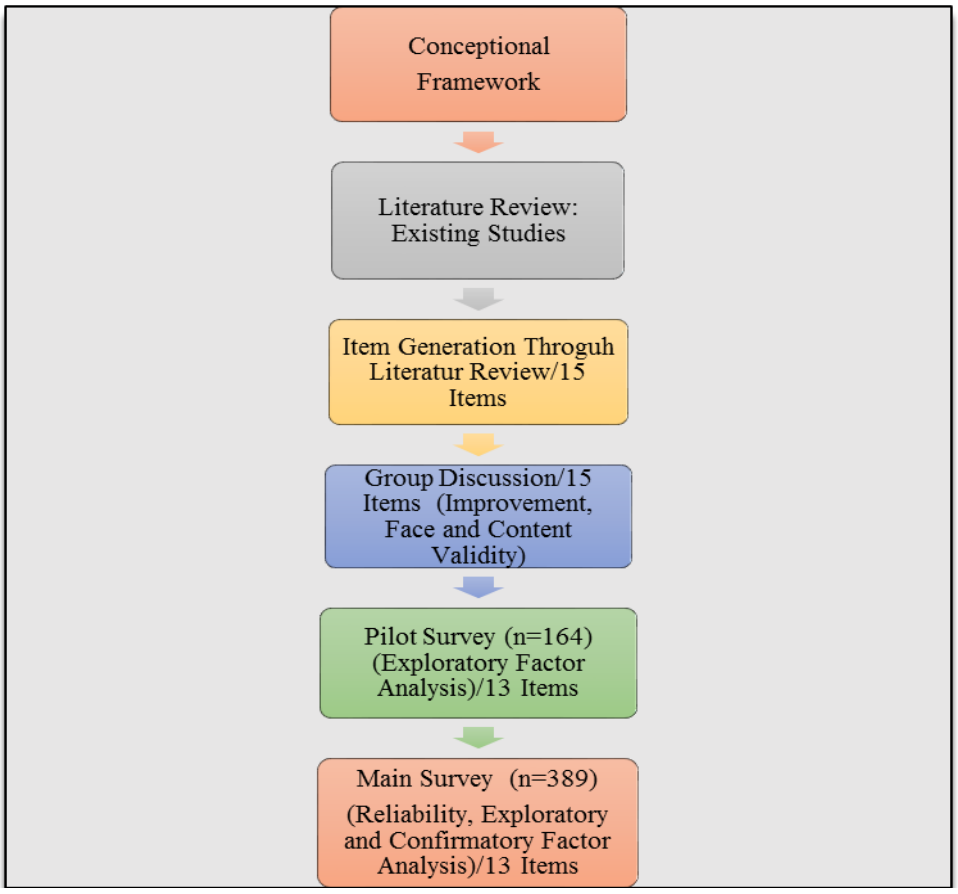
there is strong correlation between group processes and decision making in decision mechanism; and interaction in the groups is substantially important in terms of decision making mechanism. Kracmar and Uhliar (2012) has reached a conclusion that almost 45% of executive managers spend 40% of their times for decision making functions. Garvin and Roberto (2001) reported in their study that decision maker bodies either repeat their decision most of the time or they rush to reach a conclusion; or they remain indecisive for a while, then they make their decision rather late. Therefore, making decision very early is harmful as much as making it too late. The reason for both circumstances can usually rely on uncontrolled defensive action.

Previous studies show that managers have different decision-making situations and that there are different models representing each situation (Michael 1979). These studies suggest that decision making has been considered through various methods and strategies (Duque et al. 2013). From this perspective, the present study constructed a new model which can contribute to the methods and strategies given below.

IV. RESEARCH METHODOLOGY

The study is designed as shown in Figure 1.

Figure 1: Scale Design



As shown in Figure 1, first the study was planned, then the literature was reviewed, the preliminary interviews were made, the pilot study was conducted and the main study was carried out.

To develop a scale for manager decision time, the literature on the development of scales (Churcill Jr. 1979; De Vellis 2003; Hinkin 1995; Turker 2009; Caramelli and De Vijver, 2013) will be examined and the process of developing a scale mentioned above will be followed in the study.

4.1. Item Generation

At this stage, the items are produced in relation to the field mentioned by utilizing explorative techniques, questionnaires, literature review, focused group interviews (Churchill Jr. 1979). After exploring the literature about the subject, open-ended questions were asked to managers. A pool including 15 items each with 5 options was created as a result of these open-ended questions (see Table 2).

4.2. Face and Content Validity

At this stage, the validity of face and content will be recovered through the evaluation of the previous stage. The common way to measure this structure is that: Specialists of the field are consulted about the item pool and they express opinions about the validity of the pool in accordance with the conception defined (De Vellis 2003). The specialists of the field were consulted about the 15 items in this pool. Taking the findings into account, the face and content validity was provided by recovering 15 items.

Table 2: Decision Time Scale (DTS)

Items
1. *When do you usually notice that there is a problem in the organization?*
a) When everything is all right in the organization b) When I hear rumours in the organization c) When I observe some disturbance in the organization d) When I verify the rumours by observation e) When things go wrong in the organization
2. *When do you usually accept that there is a problem in the organization?*
a) I accept it when I feel the problem b) I accept it when the problem partially becomes apparent c) I accept it when the problem becomes apparent to everybody d) I accept it when the problem causes disturbance in the organization e) I accept it when the problem causes things to go wrong in the organization
3. *When do you define the problem after you accept it?*
a) I immediately define it the way I feel b) I define it after I observe it for some time c) I define it after I get a few persons' indirect opinion d) I define it after I interview the people I think to be the parties of the problem e) I define it after I get the information of all parties, relevant or irrelevant
4. *What do you do to comprehend the problem deeply?*
a) I myself work on the problem b) I get the opinions of a few relevant people c) I get the opinions of all relevant people d) I get the opinions of specialists (consultants) e) I get the opinions of all the people, relevant or irrelevant
5. *When do you determine the solution target after you comprehend the problem?*
a) I determine the first goal that comes to my mind b) I think for sometimes then I determine the target c) I create several goals concerning the solution, then I chose one of them d) I investigate the goals feasible for the solution, then I determine the goal for the solution e) I do not hurry to determine the solution goal of the problem, I wait for the events to move on

Table 2: Decision Time Scale (DTS) - Continue

6. *Which of the following do you do to create the solution?*
a) Finding a single way to solve the problem is enough b) At least 2 or 3 ways must be found c) At least 4 or 5 ways must be found d) I prefer the ways for the solution to be more e) I wait for all possible ways to the solution to be created
7. *Which of the following do you do when you investigate and compare the ways to the solution?*
a) A single way to the solution is enough, I work on it b) I myself investigate the advantages and disadvantages of the ways to the solution c) I discuss the advantages and disadvantages of the ways to the solution with a few people relevant to the problem d) I speak to the parties of the problem about the advantages and disadvantages of the ways to the solution e) I evaluate the advantages and disadvantages of the ways to the solution with the largest participation
8. *Which one of the ways to the solution do you prefer in terms of time?*
a) I prefer the nearest, but indefinite way to the solution b) I prefer the short-term, but partially permanent way to the solution c) I prefer the middle-term, but reasonable, permanent way to the solution d) I prefer the long-term, but permanent way to the solution e) I prefer the longest-term, but exact way to the solution
9. *How long does it usually take you to make a decision for a daily, usual situation?*
a) Immediately (in an hour) b) In a few hours c) In a day d) In a few days e) In a week
10. *How long does it usually take you to make a decision for an important, but familiar situation?*
a) In a day b) In a few days c) In a week d) In a few weeks e) In a month
11. *How long does it usually take you to make a decision for an important and new (unfamiliar) situation?*
a) In a few days b) In a week c) In a few weeks d) In a month e) In more than a month
12. *How long does it usually take you to make a decision for an important and risky situation?*
a) In a few days b) In a week c) In a few weeks d) In a month e) In more than a month
13. *How long does it usually take you to make a decision for a daily, but urgent situation?*
a) Immediately (in an hour) b) In a few hours c) In a day d) In a few days e) In a week

Table 2: Decision Time Scale (DTS) - Continue

14. *How long does it usually take you to make decision for an important and urgent situation?*
a) In a few hours
b) In a day
c) In a few days
d) In a week
e) In more than a week
15. *How long does it usually take you to make a decision for an emergent and risky situation?*
a) In a day
b) In a few days
c) In a week
d) In a few weeks
e) In a month

4.3. Pilot Implementation

As the number of samples is limited in the pilot study, separation of the irrelevant items and the overlapped items was aimed, that is, the items have been gathered under two or more dimensions. At first, to do the factor analysis, Bartlett's sphericity test was used to see whether the correlation between the items was enough or not. The results showed that the correlations were significant at the 0.0001 level (Approx. Chi-Square : 550,319/ df: 105/ sig: 0.000). As the 5. and the 9. items are overlapped according to the factor analysis, they are excluded and the final version is displayed at Table 2. Then the remaining 13 items are divided into 4 factors whose main value is bigger than 1.0, and which explain 59,029% of the variance.

Table 3: Total Variance Explained and Rotated Factor Loading Matrix (Through Varimax Rotation)

No	Items	Factors				Commonalities
		NP	DP	SP	DS	
1.	When do you usually notice that there is a problem in the organization?	0,814				0,697
2.	When do you usually accept that there is a problem in the organization?	0,807				0,674
3.	When do you define the problem after you accept it?		0,613			0,467
4.	What do you do to comprehend the problem deeply?		0,765			0,633
6.	Which of the following do you do to create the ways to the solution?			0,683		0,513
7.	Which of the following do you do when you investigate and compare the ways to the solution?			0,640		0,691
8.	Which one of the ways to the solution do you prefer in terms of time?			0,755		0,610
10.	How long does it usually take you to make a decision for an important, but familiar situation?				0,610	0,503
11.	How long does it usually take you to make a decision for an important and new (unfamiliar) situation?				0,678	0,530

Table 3: Total Variance Explained and Rotated Factor Loading Matrix (Through Varimax Rotation) - Continue

No	Items	Factors				Commonalities
		NP	DP	SP	DS	
12.	How long does it usually take you to make a decision for an important and risky situation?				0,757	0,617
13.	How long does it usually take you to make a decision for a daily, but urgent situation?				0,489	0,540
14.	How long does it usually take you to make decision for an important and urgent situation?				0,758	0,609
15.	How long does it usually take you to make a decision for an urgent and risky situation?				0,728	0,588
						Total
Sum of squares (Eigenvalues)		1,526	1,507	1,793	2,847	7,673
The percentage of variance explained		11,741	11,596	13,791	21,901	59,029
Note 1: Factor loads are taken as 0.40 and more.						
Note 2: The acronyms above are; NP: Noticing the problem, DP: Defining the problem, SP: Solving the problem, DS: Making a decision in different situations.						

4.4. The Selection of Sample, Obtaining and Analyzing

In this study, sample selection was made by easy sampling method. The 401 participants of this study consist of private (118) and public (education, health, security, bank, tourism, and other public sectors; 283) sector managers in the cities of Gümüşhane (174) and Bayburt (227) in Turkey. The statutes of the administrators are distributed as chief, chief manager, coordinator, vice president, president, general manager. Based on voluntary 389 valid entries, the obtained data was tested for structural validity by Exploratory Factor Analysis (EFA) on SPSS 18.0. The reliability of the scale was tested by using Cronbach's alpha coefficient. The Confirmatory Factor Analysis (CFA) of the scale was tested with Amos 16 software.

4.5. Sample Size

For explanatory factor analysis, the sample size must be at least 50, however, most researchers work with an observed variable number of at least 5 fold of the observed variables. But, it is recommended that this number should generally be 10 fold of the observed variable number Hair et al. (2010). According to this calculation, 389 samples is satisfying for the main study of our scale since there are 13 observed variables.

On the other hand, confirmatory factor analysis needs more samples than defining factor analysis. Some researchers argue that 200 samples are enough for Structural Equation Modeling (SEM), however, it may not be enough for a complex model, therefore, sample calculation method can be used depending on the N: q rule which is applicable when it comes to maximum likelihood (ML) prediction method for SEM (Kline 2011). The minimal ideal rate must be 10:1 according to Kline (2011). Shown in Figure 1, the number of parameters to predict is 34. Thus, the level of required minimal sample must be 10x34=340. The present 389 samples are enough for verifying factor analysis.

4.6. Reliability

One of the most important indicators of scale quality is the alpha reliability co-efficient and the scale is made more reliable by eliminating items displaying bad variability, negative correlation, and low correlations through this co-efficient (De Vellis 2003). Although the alpha coefficient is 0.60, Hair et al. (2010). state that the alpha co-efficient should be 0.70 or more for defining factor analysis. However, De Vellis (2003) thinks that a minimal acceptable rate should be 0.65. Cronbach's Reliability analyisis yielded a Cronbach's alpha coefficient of 0.72 which means that the scale is reliable.

4.7. Factor Analysis

To test the structural validity of the items, factor analysis was implemented and found a meaningful correlation between the items with a 0.0001 in Bartlett's sphericity test. Varimax rotation by "principal components" method was applied to scale the items 0.40 and over factor loads are defined as high loads (Hair et al. 2010). Table 3 was formed with 0.40 and higher loads and the first and second items were collected under the factor of NP (Noticing the Problem), the third and fourth items under the factor of DP (Defining the Problem), the sixth, seventh and eighth items under the factor of SP (Solving the Problem), and the 10., 11., 12., 13., 14., 15. items under the factor of DS (Different Situations). It is accepted that the variance explained in social areas is between 40-60% (Karagöz, 2015).The factors of NP, DP, SP, and DS made up for 11%, 12%, 13%, 23% respectively of the variance and they made up for 58% in total.

Table 4: Total Variance Explained and Rotated Factor Loading Matrix (Through Varimax Rotation)

No	Items	Factors				Commonalities
		NP	DP	SP	DS	
1.	When do you usually notice that there is a problem in the organization?	0,784				0,663
2.	When do you usually accept that there is a problem in the organization?	0,806				0,664
3.	When do you define the problem after you accept it?		0,678			0,523
4.	What do you do to comprehend the problem deeply?		0,794			0,680
6.	Which of the following do you do to create the ways to the solution?			0,714		0,552
7.	Which of the following do you do when you investigate and compare the ways to the solution?			0,645		0,702
8.	Which one of the ways to the solution do you prefer in terms of time?			0,701		0,559
10.	How long does it usually take you to make a decision for an important, but familiar situation?				0,710	0,515
11.	How long does it usually take you to make a decision for an important and new (unfamiliar) situation?				0,776	0,634
12.	How long does it usually take you to make a decision for an important and risky situation?				0,729	0,571

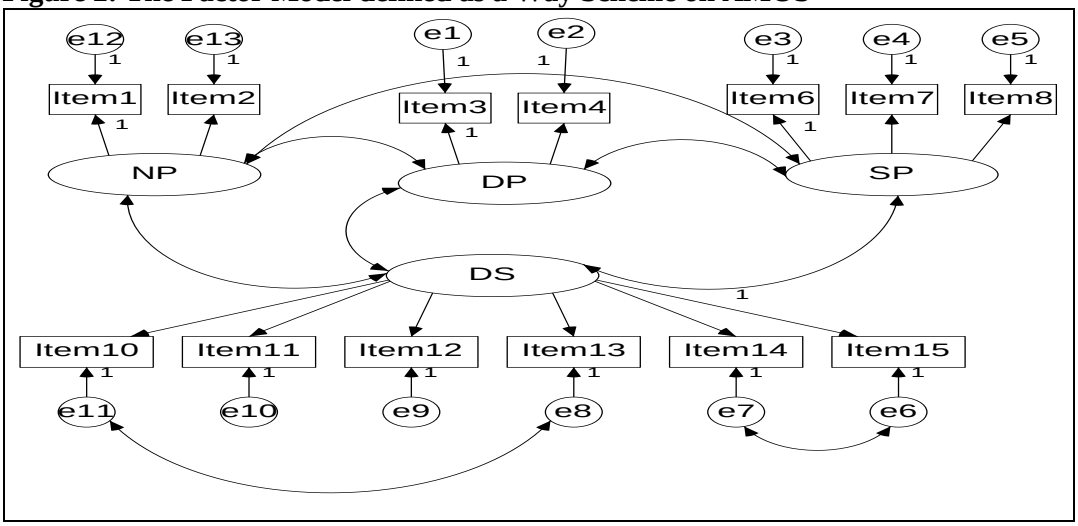
Table 4: Total Variance Explained and Rotated Factor Loading Matrix (Through Varimax Rotation) - Continue

13.	How long does it usually take you to make a decision for a daily, but urgent situation?				0,479	0,452
14.	How long does it usually take you to make decision for an important and urgent situation?				0,745	0,564
15.	How long does it usually take you to make a decision for an urgent and risky situation?				0,716	0,520
						Total
Sum of squares (Eigenvalues)		1,409	1,578	1,618	2,993	7,598
The percentage of variance explained		10,840	12,137	12,444	23,024	58,445
Note 1: Factor loads are taken as 0.40 and more.						
Note 2: The acronyms above are; NP: Noticing the problem, DP: Defining the problem, SP: Solving the problem, DS: Making a decision in different situations.						

4.8. Confirmatory Factor Analysis

Confirmatory factor analysis is one of the analysis methods used to develop a scale. There are parameters which a valid model should provide. Chi-squared statistic (χ^2), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI) and Root Mean Square Error of Approximation (RMSEA) are parameters to evaluate the fit index of the model (Perryer 247). In order for a model to be valid, the proportion of χ^2: df must be 3:1, the parameters of CFI and TLI must be over 0.90, and RMSEA must be lower than 0.08 or 0.05 (Hair et al. 2010). When the fit index results of the model are viewed, CMIN/DF (χ^2: df):2.153 (122.709/57), TLI: 0.915, CFI: 0.938 and RMSEA: 0.055. These scores show that the model provides fit index. The factor model is shown in Figure 2.

Figure 2: The Factor Model defined as a Way Scheme on AMOS



V. DISCUSSION AND CONCLUSION

When a manager makes a decision, he must keep the requirements of the enterprise and the time needed for the realization of these requirements at an optimal level. He has to compete against time. A manager, as a necessity of his authority and position, has to foresee the results to be reached. To achieve his goals, the manager must take the organization as a

whole system. If there is any deviation from the goal desired, it must immediately rectified, even after the decision (Turkson 2010; Sabuncuoğlu et al. 2002).

The currency of business life are decisions. Every achievement, every misfortune, every opportunity caught or missed is the result of decisions made or not made by someone. In most of the enterprises, decisions' being stuck at any part of the organization is a usual occasion. Of course, not individual incidents but the firm as a whole is important. Beyond factors like the sector where the enterprise operates, its size and its reputation, or what a smart strategy it has etc., the enterprise being not able to make proper decisions effectively and in time, and if these decisions cannot be implemented consistently, it will lose ground (Rogers, Blenko 2007). In this respect, successful enterprises must make better, faster, more effective, timely decisions and it must put these decisions into practice (McLaughlin 1995).

Avalid and reliable data-obtaining tool has been developed for determining the decision stages that managers see as sufficient, how they use their time in the decision process, and when they make decisions in different situations. While creating the items, we took the managers' suggestions concerning the decision process into consideration.

The main limitation of the study was that we did not found in past research a scale about the critical issue of managers' time usage in decision processes. Thus, the absence of model data about this issue may be seen as a restriction of the research. Another restriction for data collecting might be the occasions where managers were absent, unwilling to fill out the questionnaire, or had no time to respond.

The results of the research show that there are many factors affecting managers' decision processes. In this respect, research can be conducted on the effects of time traps to manager decisions, the effects of decision-making styles to the manager decision process (manager decision time), the effects of organizational structure to manager decision time, the effects of organization size to manager decision time, the effects of the environment to manager decision time, and the effects of manager decisions to organization performance. Beyond time usage of managers, the model formed in this study can also be used to study the decision time related issues of students, families etc. in problem environments (e.g. regarding school, school subjects, economical standards).

The developed scale can be functional for assessing the stages of problem recognition, definition and solution and how managers are using the time and whether managers are implementing the decision process effectively. The assessment of managers' decision process in certainty, uncertainty and risk situations will determine the unused or excessively used time. Both situations would be enlightening to devise more efficient and effective ways for the implementation of the decision process by managers. The "manages decision time scale" which has been developed here proposes a start for future researchers for development with different samples and methods.

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