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TEAM BASED PERFORMANCE APPRAISAL SYSTEMS: SCALE DEVELOPMENT AND VALIDATION

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ABSTRACT

The main aim of this study is to develop a scale to determine the team members' perceptions on team based performance appraisal systems. An integrated procedure combining interview as the qualitative method and questionnaire as the quantitative method is applied in the study. Interview was carried among 22 team leaders and members, and questionnaire among 397 team members. Companies that operate in the information sector, in Kocaeli, and apply team performance appraisal systems have been included within the scope of research. Quantitative data have been analysed with SPSS 23.0 packaged software and qualitative data by content analysis. Descriptive statistics, item-total correlation, internal consistency, reliability, and exploratory factor analysis have been used to determine the psychometric features of this hyper dimensional scale. Internal consistency reliability of the general scale has been determined as 0.926. Research results show that participants' perception of the performance appraisal systems of their own teams is positive yet around the intermediate level. According to this, it has been spotted that members' perceptions are at its highest on salary and promotion systems and at its lowest on justice systems. Research findings, limitations, and suggestions for future researches have also been discussed. As a result, consisting of 5 dimensions and 69 items, Team Based Performance Appraisal Systems (TBPAS) Scale is suggestible to be used in the future researches.

Keywords: Team Performance, Performance Appraisal, Scale Development

TAKIMA DAYALI PERFORMANS DEĞERLENDİRME SİSTEMLERİ: ÖLÇEK GELİŞTİRME VE GEÇERLİLİĞİ

ÖZET

Bu çalışmanın amacı takım üyelerinin takım temelli performans değerlendirme sistemlerine ilişkin algılarını belirlemeye yönelik bir ölçek geliştirmektir. Çalışmada nitel yöntemlerden mülakatın, nicel yöntemlerden ise anket çalışmasının bir arada kullanıldığı karma yöntem uygulandı. Mülakat 22 takım lideri ve üyesi, anket çalışması ise 397 takım üyesi ile yapıldı. Araştırma kapsamına Kocaeli'nde faaliyet

gösteren ve bilişim sektöründe yer alan ve takım temelli performans değerlendirme sistemlerinin uygulandığı işletmeler dâhil edildi. Nicel veriler SPSS 23.0 paket programı, nitel veriler ise içerik analizi ile değerlendirildi. Çok-boyutlu olan ölçeğin psikometrik özelliklerini belirlemek için tanımlayıcı istatistikler, madde toplam korelasyonu, içsel tutarlılık, güvenilirlik ve açımlayıcı faktör analizi kullanıldı. Genel ölçeğin iç tutarlılık güvenirliği 0.926 olarak belirlendi. Araştırma sonuçları katılımcıların üyesi oldukları takımların performans değerlendirme sistemi ile ilgili algılarının olumlu ancak orta düzeye yakın olduğunu göstermektedir. Buna göre üyelerin en yüksek ücret ve ödül sistemleri algısına, en düşük ise adalet algısına sahip oldukları tespit edildi. Araştırmanın bulguları, kısıtlamaları ve gelecek araştırmalar için öneriler tartışıldı Sonuç olarak 5 boyut ve 69 maddeden oluşan ve kapsamlı bir nitelik taşıyan Takım Temelli Performans Değerlendirme Sistemi (TTPDS) Ölçeğinin gelecek araştırmalarda kullanılması önerilebilir.

Anahtar Kelimeler: Takım Performansı, Performans Değerlendirme, Ölçek Geliştirme

1. Introduction

Nowadays, companies increasingly tend to being customer focused and presenting products and services that are difficult to be copied. Developments have caused a change in the unappeasable and hierarchical traditional organisation structures. Organisations have turned out to be flexible structures which are not interconnected. This change makes it impossible to do without team work.

For a company aiming at increasing its employees' individual performances, it is not enough only to be aware of the methods and activities leading the accomplishment of this target. Additionally, this company needs to have the proficiency to increase its own corporate performance. Corporate performance development is possible with the performance development on the team level. Increase in the number of team centered organisations reflects that idea that the results which is not possible to reach individually, can be reached only as a team (Jackson, 1990).

Teamwork ensures more productive results compared to the flexible groups with no clear performance targets. Member of a successful team dedicates herself or himself to concrete performance targets. This situation makes the team and the performance into an inseparable entity (Katzenbach and Smith, 1998:22). One of the systems shaped by the organisation structures that have come with team work is "Team Based Performance Appraisal Systems (TBPAS)". In a company ruled with traditional structure, evaluation applications are generally based on individuals. Nevertheless, in the recent years, the focus tends to shift towards modern appraisal systems. These systems require focusing the team performance as a whole along with the team members' performances individually. These systems come into prominence

especially when it is not possible to monitor and evaluate individual success and to measure the individual performance; or when the targets cannot be met even though the success is measured. Individual performance appraisal endeavours are leaving their places to team centered performance appraisal perceptions. Besides, it is a truth that team based appraisal is much more complex and comprehensive compared to individual appraisal.

Reviewing the team performance literature, it is seen that most parts of the studies focus on the factors affecting the team success (Hackman and Oldham, 1980; Prince and Salas, 1993; Katzenbach and Smith, 1994: Morgan, 1997; Hunt, 1999; Dyer et al., 2007, 2013). Cohen and Bailey (1997) carried out a meta-analysis of the researches made on this subject. It is determined in this study that instead of using a common modal, modals and methods that differ according to different teams have been developed in the team performance measuring and appraisal researches. Also, especially in the studies focusing on performance measuring, the presence of common dimensions that can be measured for all types of teams is pointed out (Kılınç and Akkavuk, 2001).

Researches like Hackman and Oldham (1980), Katzenback and Smith (1993) and Hung (1999) came to an agreement on the factors affecting the team performance. Efficiency, productivity, learning, development, and team members' satisfaction are the basic factors determining the team success. Prince and Salas (1993) evaluate performance regarding following dimensions; communication, leadership, planning, decision making, adaptation, members' self-confidence and awareness of their own situation. Similarly, Morgan (1997) classifies the team performance dimensions as communication, collaboration, team spirit, coordination, and suggestion.

Another dimension affecting the team performance is the heterogeneity of the team. Team members' having different natures brings on a heterogeneous structure. Mitchell (1986) analysed heterogeneity regarding the team's distinct and recessive features. Distinct features means the opinions and ideas that are easy to get about others within a short period of time. It is consisted of features such as ability, talent, work experience, attitude, and personality. Individual's education level or the length of the time he's been in the team can be given as examples to this. Apart from these, factors with not so distinct features such as communication, team leadership, and mutual dependence also affect performance. In a similar study, Reilly and McGourty (1998) suggested that it is the members' features, not the environmental factors, which determine the team's success. According to this, team performance is the result of the productivity that is formed by the team members' collaboration regarding their knowledge, skillsets and abilities. All the elements affecting the team performance ensure the determination and measurement of the desirable behaviours in the team structures. These behaviours are classified under three groups as;

individual behaviours such as knowledge, ability and talent, members' individual performance behaviours, and team performance behaviours.

TBPAS is described as planning and performing the company's performance appraisal applications in a way that suits to the teams with different features. According to Reinke (2003) these team based systems are formed upon two main agreements; the difference between the performances of members who are performing different tasks within the same team, and managers' capability to make fair evaluations between these members regarding these differences. Accuracy of these main agreements is in a linear relationship between the team members' and company management's perceptions of the system. That's why, positive perceptions of especially employees ensure the system to work in the right and effective way.

A standard that initiates a structural way to the team performance measurement have been developed. This pays regard the complementarity of the team members, how they balance one another's strengths and represent a "high quality" unit all together. This measure, the Team Performance Index, is a profile assessment tool and consists of 60 assessment questions. This study focuses on how the individual approach should be in the work assignments. Based on work type modals, this study defines the functions to be performed by an effective team. Used in forming the members' profiles, Team Management Profile (TMP) approaches the individual strengths in 8 success factors that form their roles in the team (Margerison et al., 1995). In the following years, Margerison (2001) made additions to these success factors and developed a global modal for a team to be competent, combining the necessary competencies under nine main classes. In this case, team success factors were transformed into team competencies.

In the literature, researches on the TBPAS, which is the main subject of this research, are very limited in number. Also, there is not any hyper dimensional scale to measure the team members' perceptions regarding the performance appraisal system applied by their companies. Thus, the scale for TBPAS has been developed in our study. The scale is consisted of 5 main dimensions as perceived system information, participation in decisions and process, justice, providing feedback, and compensation and reward systems. Questions regarding all the dimensions apart from the perceived system information of this hyper dimensional scale have been enhanced with interviews and researches about the subject (Levy, 1992; Thurston and McNall, 2010; Murphy and Cleveland, 1995; etc.). Statements standing out in out qualitative research have been added to the perceived system information scale that was developed by Williams and Levy (1996). Categories have been determined as a result of analysing the related literature before the interviews. The sub-dimensions of the scale's dimensions have been formed by these categories.

2. Dimensions of Team-Based Performance Appraisal Systems

During the performance appraisal process, "employees" are both in the position of both the evaluated and the evaluator. These employees' attitudes and reactions towards the company, the appraisal system, and the other individuals within the process are among the most basic factors affecting the success of the studies. In our study, the dimensions of TBPAS approached mostly as the evaluated individuals' perceptions regarding the system.

One of the performance appraisal system dimensions, perceived system information basically aims at measuring employees' perception and knowledge level regarding the targets, standards and criteria determined during the performance appraisal process (Williams and Levy, 1992). Employees should be informed about these points not only during the application phase of the performance appraisal process but also during the projection phase. Bernarding et al. (1981:312) states that regarding the durability of the system, reactions of the employees are more important than psychometric features.

Researchers, working on performance appraisal area, have gone to a change (Levy and Steelman, 1998) on the focus point of this area as a result of the dissatisfaction experienced during the appraisal systems' application (Meyer, 1991) and the process' need of theoretically being understood (Ilgen, 1993). Parallel to this change, in their studies, Folger, Konovsky and Cropanzano (1992) put forward a similar point of view named as "appropriate process metaphor". This point of view presents a general framework to developing and applying a performance appraisal system that's considered as fair by the employees.

Williams and Levy (1992) states that employees' knowledge on appraisal systems should be taken into consideration as an important variable in the activity perception. Another study supporting this idea belongs to Pooyan and Eberhardt (1989). This study lays emphasis on the differences between the managers' and employees' attitudes towards the performance appraisal system. It is stated that the higher level employees that are actively taking part to the forming and application phases of the new procedures might have more positive views towards the results of organisational decisions and processes. Research findings that are also valid for performance management systems helped the structure of system information perceptions develop. "Perceived system information scale" was developed by Williams and Levy (1992) with the aim of measuring how the system works and to what scale the performance targets perceptions are measured.

Another concept that's related to perceived system information is work climate. Work climate gives information about an organisation's "personality" and the

features affecting members' behaviours. As this situation might occur in a participation style where individual participation and initiative use skills remain at the forefront, it may also be formed by non-participation climates (Bowen and Lawler, 1992:31-39). Participative climate, which consists of attitudes and behaviours of the managers, can be defined as individuals' decision making and information sharing process. Employees' participation in the decision making process makes the process more active and interactive, along with giving them more responsibilities (Brown and Cregan, 2008). An important phase of the organisational decision making process is the employees' participation in the performance appraisal process. Robert and Pavlak (1996), analysed employees' participation in the performance appraisal process incrementally: determining the performance standards, creating the evaluation form, participating the evaluation interviews and self-appraisal of the employees. Also, researchers stated that in the organisations with high participation work climate, individuals actively take part in decision making about the evaluation and in target determining works.

Mentioning the importance of participation in the evaluation interviews, Meyer, Kay and French (1965) claims that employees' participation in the target determination will lead positive results. Studies regarding the fact that the difficult targets formed as a result of this process increases the productivity (Mento et al., 1987) supports these claims. Along with this, there is a linear relationship between the participation in the creating the evaluation forms and the satisfaction in the evaluation interviews (Silverman and Wexley, 1984).

As long as performance appraisal system is right and just, it serves as a tool to increase the commitment to the work place. Team leaders who are aware of the fact that the system is perceived as unjust by the employees but who cannot overcome the errors, accept the presence of a bad appraisal system. This situation will end either by the leader's acceptance of the current situation and continue working this way; or by his developing a new system that will enhance the employees' negative reactions (Thurston and McNall, 2010:201-201). There are significant studies in literature focusing on the subject of justice in performance appraisal (Greenberg, 1986; Phillips et al., 2001; Colquitt et al., 2002; Thurston and McNall, 2010). Some of the researches show that a fair performance appraisal system leads to employee satisfaction regarding evaluators and feedback matters (Cawley et al., 1998; Thurston and McNall, 2010). Also, employees' perception of justice increases the team spirit, psychological security and their self-confidence feelings. This situation provides an instrumental control during the appraisal process and affects individuals' feelings positively (Kahn, 1990; Taylor et al., 1995).

A fair performance appraisal system creates the sub-matters of the organisational justice that is about the general expectations from the organisation's different human

resources (HR) systems (Colquitt et al., 2002). Adopting a view similar to critical incident technique, in his study, Greenberg (1986) asked managers to submit factors that they've seen on the last evaluation period and that can be defined as fair and unfair. According to the results of the research, the factors such as asking about employees' thoughts, proceeding the interviews in mutual communication, and employees' having the right to object to the results are accepted as the determinants of justice in the performance appraisal perception.

Providing a feedback on the performance affects team performance. Information exchange, during the feedback process, develops in a way to combine the expectations from the employee and performance of the employee. Carrying out the first study pointing out the importance of feedback during the appraisal process, Maier (1958) has suggested the managers to help their subordinates about performance development and not to give negative feedbacks. In the following years, Pearce and Porter (1986) analysed behavioural effects of feedback applications and explained the existence of a partial relationship between feedback style and commitment. According to this, while organisational commitments of individuals receiving negative feedbacks decreases, there is no change observed in the commitments of the individuals receiving positive feedbacks.

In performance appraisal, feedback is accepted as a comprehensive management process by a high number of researchers (Bernardin and Beatty, 1984; Murphy and Cleveland, 1995). In an organisational framework, feedback includes member behaviours that are led to desired targets and supports high level of efforts (Vroom, 1964; Lawler, 1994). From the individual point of view, it meets the need of information about reaching the personal needs. Kluger and DeNisi (1996) have claimed that feedback has an important role in development of organisational and work related attitudes. According to this point of view, feedback has the potential affect the future performance.

Another dimension determining the team performance is the system of salary and promotion in the company. The strong connection between performance and salary has led the development of performance related pay systems. The relationship between these two concepts can be handled in different ways. As this relationship could be established on the individual or group based regarding the community it is applied to, it can also be established by forming an input or output based structure regarding the performance's nature (Kessler, 2001). For instance, in the systems where the performance unit is group based and payment performance style is the output, salary and promotions can be implemented as team payment, profit sharing, and income sharing. In group based structures where the performance style is the input, employees' may be granted shares.

According to McClury (2001), distributing financial rewards among the team members can be carried out in different ways; equal distribution among the members, directly proportional distribution based on the basic salary, proportional distribution based on the members' contributions to the teamwork. Among these, equal distribution to the members is the most frequently used technique. Shuler (1998), on the other hand, states that these systems are not limited to only financial rewards, but they also include non-financial rewards such as recognition and appreciation.

3. Team Based Performance Appraisal Systems Scale Development Process

Although there are a lot of studies in the literature on team performance, the number of the studies focusing on TBPAS and their applications is pretty limited (Brannick and Prince, 1997; Dickingson and McIntyre, 1997; Reilly and McGourty, 1998; Scott and Einstein, 2001; London, 2007; Wiegmann et al., 2007; Malec et al., 2007; Rowland, 2013). While some of the studies guide the managers about evaluating the team members' behaviours, reactions or performances (Reilly and Mc Gourty, 1998), others develop a new participant rating scale to be able to determine the skills that are related to high performance teamwork (Malec et al., 2007). However, among all studies based on this subject, there exists no scale to measure how the performance is planned, evaluated, or developed in the team structure. It is seen that many companies, that claim performing team work and applying team based appraisal process, present traditional understanding and feel no urge to re-arrange the system. Most of these organisations use individual based performance appraisal processes and forms, and tend to continue the old system. This view caused the performance appraisal efforts to be seen as unnecessary and the system not to be able to move beyond the individual performance appraisal perceptions. It is not possible to talk about an efficient evaluation system in the organisations where the whole team is handled as a whole and individual members' contributions are disregarded. All of these reasons have caused an emerging need for a new scale regarding TBPAS that has become popular in the performance evaluation area within the recent years.

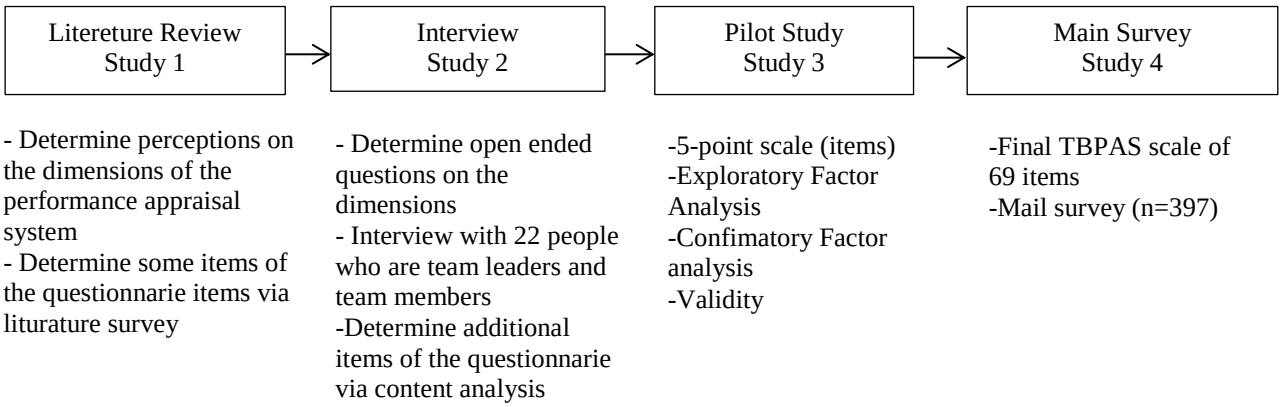
Regarding the fact that individuals tend to create attitudes in line with their perceptions and behave in line with their attitudes, we can state that perceptions lead these mentioned attitudes and behaviours. This situation shows the importance of individuals' perceptions on the performance appraisal efforts applied in their organisations. Thus, our study focuses on performance appraisal system perception that is the base of individuals' attitudes, behaviours and reactions.

In our study, multiple scale development studies (Bagozzi et al, 1991; Rossiter, 2002) have been availed along with the scale development procedures that has been developed specially for marketing area and advocated by Churcill (1979). Qualitative and quantitative methods have been used together to be able to extend the previous

research on performance appraisal systems and to be able to develop TBPAS scale. On the phase when the questionnaire items were created, a qualitative research was done where participants were directed open ended questions. It was assumed that the interview and questionnaire questions were answered by individuals who are prone to teamwork and who had necessary information regarding the team' mechanism.

Figure 1 summarizes the procedures of the scale development.

Figure 1: Procedures of the scale development



3.1.Item Generation

In this part of the research, a comprehensive item pool is created by following the phases of well-established scale development procedures (Churchill, 1979; Bagozzi et al, 1991; Rossiter, 2002; DeVellis, 2003). In scale developing, the first thing to do is to create the cognitive definition of the structure (Rossiter, 2002). In the first phase of the process, a literature review has been carried out regarding the TBPAS dimensions. Team members' perceptions within the frame of appraisal dimensions have been determined using the related sources (Williams and Levy, 1992; Brown and Cregan, 2008; Roberts and Pavlak, 1996; Cawley et al., 1998; Thurston and McNall, 2010; Dominick et al., 1997; Kluger and DeNisi, 1996; Armstrong et al., 2000; Kessler, 2001).

During the preparation of the interview form, questions' containing the components as in the deduction technique and the research content were paid attention. Similar questions were combined together and related questions were put into order to follow each other. In the interviews, 9 questions were included, 4 of which are related to demographical variables. The aim, content and number of the qualitative research

questions were re-arranged according to each interview's course. Opinions of specialists have been asked to determine the comprehensibleness of the questions.

In forming the item pool in which the questionnaire items are included, first of all, literature studies have been analysed, taking the dimensions into consideration, and a term list was determined. Next steps of the research are carrying out the interviews and adding the new terms to the list according to the analysis of the interviews. In this phase, a half structured qualitative research has been carried out, in which participants were directed open ended questions. One team manager and "minimum one" team member were included to the interviews. According to this, within the 9 organisation, 9 team leaders and 13 team members were arbitrarily included in the scope of the research. It was paid attention that the teams were "cross functional project teams". Participants were chosen among the ones who had at least once actively participated in the performance appraisal process, who had previously worked or still working in a team. The fact that participants are qualified enough to answer the research questions is accepted as presupposition related to the people accepting to participate. The aim of this application is to be able to see the structure of teams' performance appraisal system. The terms list that forms the initial item pool has been formed on the basis of the interview input.

The questions intended to determine how the team leaders and members perceive the performance appraisal systems applied in the organisation. Voice recorder was used in the interviews with the permission of the participants. The recorded interviews were put into texts and these texts were subjected to content analysis. Apart from demographic variables, participants answered following questions:

1. What do you think about the TBPAS applied in your organisation? Can you give some information about the system's structure?
2. Do you think that the performance appraisal system work fairly?
3. To what extend do you have a voice in the decisions made during performance appraisal process?
4. Is there an efficient feedback system in your organisation?
5. How do the salary and reward systems applied in your organisation support your team performance? Are the rewards given regarding the team success or individual success?

TBPAS scale is consisted of five dimensions as; perceived system information, participation in decisions and process, justice, providing feedback, and compensation and reward systems. For each dimension of this hyper dimensional scale, sub-dimensions were developed. Items about all dimensions, except the perceived system information, were determined by interviews and subject related researches. For the perceived system information dimension, terms that came prominent in the

interviews were added to the scale that was formed of 11 terms and developed by Williams and Levy (1996). An item pool, containing 94 terms in total, which includes different dimensions of performance appraisal systems were created.

The sub-dimensions of the TBPAS Scale's dimensions were determined within the frame of the categories that were formed following a literature review of the related subjects before the interviews. The validity of the pre-application supports the sub-dimensions that form the test. The sub-dimensions determined before the interview, also known as categories, do not present any difference from the factors formed the validity test results. Perceived system information dimension is separated into two dimensions as general system information and individual system information. Sub-dimensions of the participation in decision and process are participation in general decision and processes, participation in performance planning, and participation in performance appraisal. Justice dimension is evaluated within the scope of the sub-dimensions as performance-justice relationship and objectivity related to performance appraisal. Providing feedback is handled with the sub-dimensions as providing feedback and successful/unsuccessful performance-feedback relationship. Lastly, compensation and reward systems dimension is analysed under the sub-dimensions as general compensation systems, team based compensation systems and individual compensation systems.

3.2.Item Purification

In the initial purification, by content validity judging, it was tried to determine whether the cognitive definitions were ranked in the measuring of all elements or not, and whether they were presented or not. Cognitive definitions were formed with ideas and notions (Neuman, 1994). Before the pilot study, during the phase of forming the dimensions and sub-dimensions of the scale and developing the "code" terms of the sub-dimensions, evaluations of 8 experts (3 academicians, 2 HR specialists, 2 team leaders, and 2 team members) were considered. 8 items that were considered as appropriate and ambiguous were left outside the scope. Also, as per specialists' ideas, some new items were added, and some were re-arranged. With the aim of improving the comprehensibility of the questions, scientific statements related to the literature were avoided.

To test the internal consistency of the TBPESP Scale and to decrease the number of items, an initial purification and a pilot survey were carried out before the main study. 104 team members participated to the pilot study to answer the 86 statements in the questionnaire. It was paid attention that each and every participant was involved in team structuring activities.

Participants were asked to evaluate the statements (7 statements measuring the demographical features are included in this number) using 5 Point Likert type Scale (1=Totally Disagree, 5= Totally Agree) to see the extend they agree them. To be able to clarify the incoherent subjects and the words during the questionnaire filling process, team members were given the change to answer the questions while the researchers were around. Thus the response rate of the questionnaires is 100%. In the face to face application, there were determined some incoherent, misunderstood or deficient statements; and the questionnaire was re-structured. In that case, there were no changes made to the number of the item number, but only necessary arrangements were done to some of the statements.

Team members working in the informatics sector participated to the pre-application and the main study. As the descriptive statistics results of the pilot testing participants have similarities with the main study results, Study 4 results were included to avoid repetition. The features of the main study participants, to which different groups attended, are shown on the Table 1. Selected sample represents the cross section of the organisation with varying characteristics.

Table 1. Properties of the Participants

Characteristics	**n**	**Percent**
Gender		
Male	264	66.5
Female	133	33.5
Age		
18-24 years old	32	8.1
25-34 years old	189	47.6
35-44 years old	129	32.5
45-54 years old	33	8.3
55-64 years old	10	2.5
65 years old and older	4	1.0
Education Level		
High school degree	10	2.5
Bachelor degree	251	63.2
Master degree	119	30.0
Doctorate degree	17	4.3
Duration of working in the organization		
Less than 1 year	41	10.3
1-3 years	100	25.2
4-6 years	133	33.5
7-9 years	77	19.4
10-12 years	32	8.1
13 years and above	14	3.5
Duration of working in the team		
Less than 1 year	119	30.0
1-3 years	185	46.6
4-6 years	70	17.6
7-9 years	23	5.8
Duration of the main Project		
Less than 6 months	76	19.1
6-12 months	141	35.5
13-24 months	101	25.4
25-36 months	47	11.8
37-48 months	27	6.8
49 months ve above	1	1.3
The number of teams in which an employee can be a member at the same time		
1 team	276	69.5
2 teams	114	28.7
3 teams and above	7	1.8

Apart from the participants' features, when the team features were analysed, it was seen that 12.3% of the teams had 1-4 members, 56.4% had 5-8 members, 20.9% had 9-12 members and 10.3% had 13 members. These team size related results support the ideal team size (Katzenbach and Smith, 1994). While almost half of the team members (46.3%) state that they have the performance appraisal twice per year, 32.4% state once a year, 14.8% three or four times a year, and 0.18% five or six times a year. Also, 5.6% of the team members stated that they had never been evaluated. This situation may have resulted from the fact that these participants may not have information about the appraisal system or that they may have a negative attitude towards their managers.

3.3.Reliability and Validity Assessment

As a result of reviewing the conceptual definitions in the literature and content analysis of the interview contexts, it is chosen for the item pool to have 69 statements. Gathered data analysed by using SPSS 23.0 packaged software. Firstly, descriptive statistics was used to compile and summarize the data. Next step was the analysis of scale's validity and reliability through a pilot survey. Research population consists of the team leaders and the members of cross functional project teams of the companies which are active in informatics sector in Kocaeli and which apply TBPAS. Study was carried out in two phases. In the first phase, HR departments of the organisations, which are arbitrarily chosen among the related database, were given information about the aim of the study and necessary permissions were attained. Later, the team leaders of the cross functionally active teams in these organisations were met and told about the aim of the research. This way, the groups consisting of only the team members were ensured to attend the "TBPAS Survey". In the second phase, 52 organisations, whose features were previously mentioned, were included to the scope of the research. Among them, 35 organisations accepted to attend. In this application, where the team members, except the team leader, were included, there attended 62 teams with different number of members and 397 team members in total. Sample size has the power to present the population's features.

To be able to make a factor analysis on the data, minimum KMO index was suggested as 0,60 (Pulland, 2001). This index examines whether the data matrix is suitable to the factor analysis. For the five dimensions of the scale, KMO values differ between 0.783 and 0.855. The sufficiency of the correlation between the elements is determined by Bartlett's test of sphericity. This value (4811,102; $p=.000<.001$) shows that the items in the scale are suitable for the factor analysis. KMO index and Bartlett test values show that the items in the scale can be grouped under the factors.

Factor analysis was applied to the last version of the scale. In the study carried out for five different dimensions, the principal component analysis results are changing between two and three factors (Please see Table 2). In this table, there are analysis results related to Study-3 and Study-4. This table shows the scale's factorial structure. The reason of repeating the same analyses on different sample groups is to determine the items which have the possibility to vary depending on the factors.

Maximum likelihood estimation method was used in the factor analysis and varimax was preferred among the orthogonal rotation methods. One of the reasons of preferring this method is to league the factors together with the highly related items. Also, Bartlett test determined that the result is meaningful for all dimensions. As a result, the total variance of the scale, which has five dimensions and which was attained with different factor numbers, is 83,647%. Factors related to the dimensions are put together under one title. Dimension related factor numbers are the same as the sub-dimension number that was predetermined before the interview.

Explanatory factor analysis (EFA), that assesses the scale's validity, was carried out to statistically define the sub-dimensions that were predicted as a result of the literature review. The reasons of preferring this analysis are to show the latent structure of the scale that's desired to be improved and to determine the number of the dimensions that the items would classify and the relationship between them.

In the next phase, using factor analysis, unrelated items were eliminated. Component analysis was applied to the items with the aim of determining how the dimension related total variance values are classified on the basis of factors. 10 terms which have the factor load less than 0,45 were eliminated. Table 2 shows the values of the dimension related factors and the variance percentages of the factors. According to the Varimax analysis results, the factors with value of 1,00 are accepted as meaningful. The fact that total variance rates that are attained as a result of factor analysis are high shows that the scale's factor structure is strong. As a result of the analysis where different factor numbers were attained for five different dimensions, total variance of the item dimensions are described as 71,826% (perceived system information), 80,564% (participation in decision and process), 66,651% (justice), 67,217% (providing feedback) and 70,986% (compensation and reward systems). At the end of these analyses, the first version of the TBPAS scale got ready to use with 76 items.

Table. 2: Item-Total Correlation statistics

Items		EFA Study 3			EFA Study 4		
Perceived System Information	Corrected item total correlation	Factor-1	Factor-2	Factor-3	Factor-1	Factor-2	Factor-3
I know the aims of the performance appraisal system applied in my organisation.	.307	.84			.64		
I know the process of performance appraisal system applied in my organisation.	.302	.83			.62		
I have enough information about the performance appraisal system applied in my organisation.	.532	.81			.64		
I know how the performance appraisal result is determined.	.443	.89			.68		
We reach to an agreement with my team leader about the criteria that'll be used in the evaluation.	.355	.88			.72		
Our team leader informs us about the aims of performance appraisal system.	.338	.86			.72		
I can make use of further trainings to get more information about the performance appraisal.	.485	.84			.64		
I know the performance my team leader is expecting from me.	.519	.83			.72		
Methods used in the performance appraisal system are completely comprehended by the employees.	.419		.75			.58	
There are various efforts to increase the comprehensibleness of the performance appraisal system.	.409		.89		.61		
A group of people (e.g. HR specialist, senior managers), who do not perform evaluation and are also not evaluated, can observe the	.413		.63		.56		

performance appraisal process.							
Performance appraisal is a time consuming application.	.600		.92			.61	
Performance appraisal results are determined only by the appraisal of the first senior manager.	.364		.91			.67	
Explained Variance (% of Variance) Eigenvalue		*43,22 5,62*	*28.17 3.66*		*35.43 4.61*	*11.05 2.44*	
Participation in Decision and Process							
In our company, there is a structure to encourage the employees to contribute to the performance appraisal system.	.477	.76			.72		
I believe that I contribute to the performance appraisal system applied in our company.	.433	.89			.65		
I can discuss my performance appraisal result with my team leader.	.729	.86			.73		
I can object to my performance appraisal result.	.594	.87			.68		
Change requests I make about the performance appraisal system is paid attention by my team leader.	.596	.81			.76		
My opinions are asked while the team vision and targets are determined.	.398		.85		.72		
My opinions are asked while performance criteria are determined.	.446		.83			.82	
I am actively involved in the process of determining my individual targets.	.422		.85			.81	
I am actively involved in the process of determining team based targets.	.409		.72			.78	
I am actively involved in the performance planning process.	.357		.84			.80	
My team leader cares for my ideas and opinions.	.353			.90			.68
I can share my work related targets	.401			.82			.76

and plans with my team leader.							
There is an open relationship between me and my team leader.	.471			.91			.79
I can easily access my team leader in the situations where I need him/ her.	.715			.87			.54
Explained Variance (% of Variance) Eigenvalue		*44.16 6.18*	*20.32 2.84*	*13.98 1.96*	*47.69 4.67*	*14.15 2.04*	*11.26 1.75*
Justice							
My team leader is objective during the performance appraisal process.	.428	.83			.70		
My team leader rewards the employees he/she likes.	.407	.89				.66	
Some employees in the team are evaluated more positively than their current performances.	.496	.85				.84	
My team leader cares for the employees' rights.	.645	.87			.62		
I believe it is fair to use the performance outputs during the promotion process.	.583	.63				.60	
My team leader tries to be fair.	.529	.67			.64		
My team leader is objective.	.341	.88			.68		
Considering my stress at work, I believe I am evaluated fairly.	.357		.78		.64		
Considering the effort I am making for work, I believe I am evaluated fairly.	.591		.83		.67		
Considering my performance, I believe I am evaluated fairly.	.375		.87		.71		
I believe that performance appraisal results are fairly reflected to the wages.	.424		.73		.64		
Considering other people doing the same job as me in this team, I believe I am rewarded fairly.	.445		.92		.71		
Considering other people doing the same job as me in other teams, I believe I am rewarded fairly.	.545		.83		.61		

I believe the work I am doing is not appreciated.	.555		.76		.64		
Explained Variance (% of Variance) Eigenvalue		*37.35 5.23*	*32.87 4.64*		*32.81 4.59*	*22.22 3.11*	
Providing Feedback							
There is a strong feedback culture in our company.	.322	.86			.65		
My team leader tries to transfer the appraisal results as correctly as possible.	.334	.77			.63		
Feedback system is closed to debates.	.411	.83			.67		
Feedback regarding my performance is provided at the end of the periods.	.360	.84			.73		
Feedback application is done timely.	.345	.85			.63		
In the feedback process, it is more important how it is said than what is said.	.348	.89			.70		
Providing regular feedback has effects on my performance.	.407	.82			.71		
The ambient conditions where the evaluation interviews are done affect the feedback.	.392	.91			.63		
In our company, successful/adequate performance is provided with feedback.	.501		.75		.51		
In our company, unsuccessful/ inadequate performance is provided with feedback.	.499		.71			.61	
Negative feedback affects my performance in a negative way.	.386		.79			.54	
When I have an unsuccessful performance, I feel the disappointment in my team leader's feedback.	.407		.86			.60	
When I have an unsuccessful performance, I feel the anger in my team leader's feedback.	.452		.83			.70	

Negative feedback towards my performance decreases my commitment to the organisation.	.318		.75		.54		
Explained Variance (% of Variance) *Eigenvalue*		*44.89* *6.28*	*26.86* *3.76*		*35.68* *4.15*	*25.51* *3.06*	
Compensation and Reward Systems							
Appraisal results are used to determine the compensation.	.536	.83			.63		
Performance based compensation decreases my will to be in cooperation with the management.	.515	.87			.77		
I believe outstanding people are rewarded instead of the calm people in the team.	.430	.85			.70		
Team based compensation causes competition.	.332	.80			.62		
In determination of compensation and rewards, individual and team based compensation systems are used together.	.515	.82			.66		
I prefer team based compensation to the individual compensation.	.412		.87				.56
Individual compensation is a motivating element for me as I can control the outputs easier.	.511		.85		.74		
Performance based compensation is fundamentally useful application.	.381		.54			.65	
The use of only personal compensation systems in the organisation decreases my will to cooperate and help others.	.490		.85			.71	
Individual compensation and reward systems prevent the teamwork.	.507		.81			.78	
Individual compensation increases my motivation towards work.	.495			.83			.82
Team based compensation increases my motivation towards work.	.482			.82			.80

Main goal of team based compensation is to support teamwork.	.529			.80			.71
Team based compensation increases the team's efficiency.	.405			.73			.70
Explained Variance (% of Variance) *Eigenvalue*		*37.53* *5.25*	*22.01* *3.08*	*19.83* *2.78*	*32.56* *4.56*	*11.47* *2.49*	*17.08* *1.61*

In scale development efforts, conservation of replicability is significant, and this forms the prior condition of reliability (Churchill, 1979; Parasuraman et al, 1988). Considering this view, first of all the reliability of the scale was tested. After the initial purification carried out by specialists, item-total correlations were computed for every item. 7 items with coefficient values less than 0.30 were eliminated. This way, after purifying the scale by eliminating the items which have low correlation or no correlation, study was continued with 69 items. In the internal consistency reliability analysis, the Cronbach's alpha values of the scale in general and of the dimensions were determined. Nunnally (1967) states that the research can be accepted as reliable when the Cronbach Alpha index is over 0.7 level. This value is 0.926 for total item pool. When the index were analysed for each dimension, it is determined that the index changes between 0.928-0.819 for the five dimensions; and all these values are over the suggested limit value.

4. Discussion

Using qualitative and empirical researches, TBPAS scale, that's related to TBPAS perceptions, is developed and validated in this study. It is examined that the validity and reliability of the scale is on the high level. This study sums up the hyper dimensional nature of the team performance appraisal from the employees' point of view. Arising from the results of the common effort of each member of the team, team performance has a rich cognitive content and it cannot be handled within one criterion. The scale was formed as a five dimensions modal: perceived system information, participation in decisions and process, justice, providing feedback, compensation and reward systems. These dimensions were separated into sub-dimensions among themselves. The item pool was formed using the results of literature review in Study-1 and deep interview in Study-2. The pilot application was carried out in Study-3 and the questionnaire in Study-4.

Evaluating the current researches related to this subject, it is seen that while the importance given to the TBPAS systems is in the increase, there is no scale to handle

these applications from the employee's point of view. This study measures how the team members perceive the performance appraisal applications in their organisations.

According to the first findings of the research, the employees' perceptions about their teams' performance appraisal systems are positive, although close to the neutral. The frequency of performance appraisal may change regarding the characteristics of the team. While the performances of marketing team members are evaluated more frequently, performance of management team members may be evaluated annually. The result of our research shows that evaluation frequency may differ among the cross functional teams. When there is an increase in the performance appraisal periods, members' information levels about the evaluation system decreases. This situation can be explained with the fact that the related units may focus on the highly frequent performance appraisal works and become distant to the fact that employees need to be informed about the processes. Along with this, as per the answers of the team members, working in companies that claim to apply TBPAS, it is seen that 6% of them do not experience performance appraisal processes. This result of the employees' ignorance about the system may be caused by their own negative attitudes towards their managers or team leaders. Employees' not being aware of the system may be caused by the management's not being able to inform the employees or employees' not being able to get the information provided. The reason why these participants were not excluded from the research is that the HR managers had previously confirmed the active application of TBPAS.

In multi-sourced performance appraisal applications, members' performance appraisal perceptions show differences. It is seen that perception of participation in decision and process is high in the teams where their peers are the evaluators, the perception of justice is high in the teams where employees' themselves are the evaluators, and the perception of perceived system information is high in the teams where the customers are the evaluators. In the organisations where peers are involved to the appraisal process, participants, in general, seem to find the teams successful. It is observed that when the team leader has the job of evaluation, the perceptions of feedback and compensation and reward are negative.

5. Limitations and Future Research

Although, TBPAS are explained in detail and significant contributions are presented in the study, there still are a number of limitations of the research. In the research, during the performance appraisal process, with the aim of getting realistic results, the participants were told that the names of their organisations, departments and participant identity information would be kept confidential. Regarding this fact, it is assumed that the interview and questionnaire participants answered the questions in the considering the real situations. It is not possible to state that the results of the

research are totally objective. Output is limited to the answers that the participants gave to the measurement questions on the questionnaire.

Instead of asking all involved organisations to apply the questionnaire to all of their employees, minimum one team of each organisation were included in the research. Research results are limited to the sample consisting of 397 employees. One of the important limitations of the research is that the generalizability is limited. Instead of involving all team types in the organisations to the research, only cross functional project teams, which were thought to be able to reflect the team perception in the informatics sector, were included to the scope of the research.

Another important limitation is the fact that there is no hyper dimensional scale to measure the employees' performance appraisal perceptions, which is the main subject of the research, in the literature. This situation necessitates the forming of a new scale. Using the literature review related to this subject and the data attained from the interview formed the new scale.

Considering the opinions of the participants about the interview questions and the results of the questionnaire, a number of suggestions were made for the applicants and for the future studies on this subject:

Participants have positive attitude towards the performance appraisal system in the interviews. However, it is pointed out that the senior management does not properly adopt the system and employees' are not sufficiently informed. With a programme to be performed with senior management and HR department's efforts, more briefings may be performed about the aim and application of the system, and performance criteria, etc. Trainings and seminars about this subject will increase the teams' awareness of performance appraisal. Interview results present directive data for the companies with the aim of especially the application and development of team performance appraisal.

We can say that "TBPAS process" part of our research can guide the organisations which work in teams however have not yet reflected this way of working to their measuring and evaluating activities. Success is seen in the systems where the performance of the team as a whole and performance of the members individually are focused simultaneously. Asking for the team members' opinions and suggestions during the forming of TBPAS and performance planning will both make them a part of the evaluation process and also increase their commitments to the organisation.

In the research, TBPAS applied in the organisations are focused. Accordingly, a questionnaire was carried out with the team members while other organisation members such as senior managers and team leaders were excluded. New researches

including the team leaders, senior management, and the customer, that is an aspect of the hyper dimensional evaluation, will provide more detail. More comprehensive researches including the other factors affecting the teamwork will add up to the limited literature. Researches might be widened including the external factors affecting the team, cultural structure supporting the teamwork, and the relationship between the team members' skills and performance appraisal processes. In other studies where more different team types such as the management teams, virtual teams, problem solving teams are added to the scope of the research, the subject of the research may be the effects of the team performance determinants on the performance appraisal system.

In this research, participant perceptions towards one main variable is tried to be determined. Measuring the team members' expectations about the variable and determining satisfaction levels of the members might be the new research subjects. There are more organisations working as a "team" in different sectors, apart from the informatics sector. TBPAS should be formed and developed in these organisations, too. Also, apart from organisations having cross-functional project teams and working in the informatics sector, further studies may be carried out for performance appraisal in other sectors. Researches handling the subject with wider participant level will enable generalisations regarding this subject.

References

BRANNICK, M. T. and PRINCE, C. (1997). An Overview of Team Performance Measurement, in M. T. Brannick, E. Salas & C. Prince (Eds.), *Team Performance Assessment and Measurement: Theory, Methods and Applications,* (pp. 3-16). Mahwah, NJ: Erlbaum.

CHURCHILL, Jr. G. A. (1979). A Paradigm for Developing Better Measures of Marketing Constructs. *Journal of Marketing Research*, 16, 64-73.

DEVELLIS, R. F. (2003). *Scale Development: Theory and Applications.* (2nd ed.). Sage Publications, Thousand Oaks.

DICKINSON, T. L. and MCINTYRE, R. M. (1997). A Conceptual Framework for Teamwork Measurement, in M. T. Brannick, E. Salas & C. Prince (Eds.), *Team Performance Assessment and Measurement: Theory, Methods and Applications,* (pp. 19-43). Mahwah, NJ: Erlbaum.

GORDON, J. (2002). A Perspective on Team Building. *Journal of American Academy of Business*, 2 (1), 185-188.

HALLAM, G. & CAMPBELL, D. (1997). The Measurement of Team Performance with a Standardized Survey, in M. T. Brannick, E. Salas & C. Prince (Eds.), *Team Performance Assessment and Measurement: Theory, Methods and Applications*, (155-171). Mahwah, NJ: Erlbaum.

KILINÇ, T. and AKKAVUK, E., (2001), Takım Performansının Ölçümüne Metodolojik Bir Yaklaşım, *Akdeniz İ.İ.B.F. Dergisi* (2), 103-120.

LONDON, M. (2007). Performance Appraisal for Groups: Models and Methods for Assessing Group Processes and Outcomes for Development and Evaluation. *Consulting Psychology Journal: Practice and Research*, 59 (3), 175-188.

MALEC, J. F., ORSHER L. C, DUNN W. F, WIEGMANN D. A, RNOLD J. J, BROWN D. A. and PHATAK V. (2007). The Mayo High Performance Teamwork Scale: Reliability and Validity for Evaluating Key Crew Resource Management Skills. *Simulation in Healthcare*, 2 (1): 4-10.

MARGERISON, C. J. (2001). Team Competence. *Team Performance Management: An International Journal*, 7 (7/8), 117-122.

MARGERISON, C. J., MCCANN, D. and DAVIES, R. (1995). Focus on Team Appraisal. *Team Performance Management: An International Journal*, 1 (4), 13-18.

MURPHY, K. and CLEVELAND, J. N. (1995). Understanding Performance Appraisal: Social, Organizational, and Goal-based Perspectives, Thousand Oaks, CA: Sage.

PARASURAMAN, A., ZEITHAML, V.A. and BERRY, L. L. (1988). Servqual: A Multiple-item Scale for Measuring Consumer Perceptions of Service Quality. *Journal of Retailing*, 64 (1), 12-40.

PULLANT, J. (2001). *SPSS Survival Manual. A Step-By-Step Guide to Data Analyses Using SPSS For Windows*. Philadelphia, PA: Open University Press.

REILLY, R.R. and MCGOURTY, J. (1998). Performance Appraisal in Team Settings, in Smither, J.W. (Eds.), *Performance Appraisal: State of the Art in Practice*. (pp. 244-277). San Francisco: Jossey-Bass.

ROSSITER, J. R. (2002). The C-OAR-SE Procedure for Scale Development in Marketing. *International Journal of Research in Marketing*, 19, 305-335.

ROWLAND, C. (2013). Managing Team Performance: Saying and Paying. *International Journal of Organizational Analysis*, 21 (1), 38-52.

SCOTT, S. G. and EINSTEIN, W. O. (2001), Strategic Performance Appraisal in Team-Based Organizations: One Size Does Not Fit All, *Academy of Management Perspectives*, 15 (2), 107-116.

SINGH, V. and SRIVASTASVA, U. R. (2016). Team Performance Scale for Hospitality Professionals. *Journal of Psychosocial Research*, 11 (1), 1-12.

THURSTON, P. W. and MCNALL, L. (2010). Justice Perceptions of Performance Appraisal Practices. *Journal of Managerial Psychology*, 25 (3), 201-228.

VALENTINE, M. A., NEMBHARD, I. M. and EDMONDSON, A. C. (2015). Measuring Teamwork in Health Care Settings: A Review of Survey Instruments. *Medical Care*, 53 (4), 16-30.