A WAGE SCHEME BASED ON JOB AND PERFORMANCE EVALUATIONS

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Keywords	Abstract
Job evaluation, task performance, contextual performance, employee characteristics, wage system, reward	*This paper presents a wage model consisted of job evaluation, performance evaluation to measure employee's task and contextual behaviors, besides employee characteristics. Employee's wage is a sum of a basic wage derived from a job score and three variable rewards including (i) a revision reward satisfied with task performance, (ii) a reward linked to contextual performance, and (iii) a merit wage increased for employee characteristics in terms of education degree+, seniority and team leadership. An approach producing a job-linked score for each one component and then a related wage grade are developed. For the basic wage, job evaluation is carried out to assess forty-nine blue-collar jobs within a company. How an employee accomplishes the task activities for seven job evaluation factors is assessed as task performance. A linear function is developed to transform employee's contextual performance to a job-linked score. These three components are integrated into a composite score to translate a wage level. The system is implemented in a middle-sized manufacturing company for blue-collar jobs for a given period. The results indicate that the job point has a significantly greater influence on a wage level.*

İŞ VE PERFORMANS DEĞERLEME ESASLI BİR MAAŞ MODELİ

Anahtar Kelimeler	Öz
İş değerlemesi, görev performansı, davranışsal performans, kişisel özellikler, maaş sistemi, ödül	*Bu çalışmada, iş değerlemesi ve personelin görev ve bağlılık davranışlarını ölçmek için performans değerlemesi ve personel özelliklerinden oluşan bir maaş modeli sunulmuştur. Personel maaşı iş skorundan elde edilmiş temel maaş ve 3 değişken ödül; (i) görev performansı ile elde edilmiş bir ödül, (ii) bağlamsal performansla ilgili bir ödül, (iii) eğitim, deneyim ve takım liderliği açısından kişisel özellikler için bir ek gelir, toplamıdır. Her bir bileşen için iş bazlı bir skor elde eden ve bunu bir maaş seviyesi üreten bir model geliştirilmiştir, Temel gelir için, bir işletmede 49 mavi yakalı işin puanını belirlemek için iş değerlemesi yürütülmüştür. Yedi iş değerleme faktörü için personelin görev aktivitelerini nasıl başardığı görev performansı olarak değerlendirilmiştir. Çalışanın bağlamsal performansını iş bazlı puana dönüştürmek için bir lineer fonksiyon geliştirilmiştir. Üç bileşen, bir ücret düzeyine ulaşabilmek için birleşik bir skora dönüştürülmüştür. Sistem bir dönem için orta ölçekli bir metal sanayi işletmesinde mavi yakalı işler için uygulanmıştır. Sonuçlar, iş performansının, ücret seviyesinin oluşmasında daha büyük etkiye sahip olduğunu göstermiştir.*

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1. Introduction

Tough economic conditions and increasing labor costs obliged many companies in the 2000s to modify their HRM (Human Resources Management) systems. As an attempt to follow the performance-based wage systems used in USA companies, the companies in the other countries are changing their wage systems relied heavily on employee age and/or seniority. Companies can establish various types of performance pay practices. As one of them, individual performance-related pay rewards employee for reaching to a performance target. The main objectives of this system are both to increase job performance and to reward an employee who achieves higher performance. It is more common to think of schemes involving a combination of fixed salary and a variable component that is performance-dependent (Conyon, Peck and Read, 2001). There is a view that a performance-based wage system is more effective than the other ones for achieving business objective since they reflect employee's performance and business objective.

Job evaluation concerns the assessment of a value system that reflects the required responsibility and duties of a job (Wilde, 1992). It produces a basic wage. It is plausible that other personal and organizational influences should be considered for merit wage increases. Performance evaluation is the process that compares employee's job performance with job standards to measure how well the job is performed. Job performance is measured by asking the supervisor of each employee who completed a survey to assess his/her task and contextual performance (Borman and Motowidlo, 1993). Task performance relates to the proficiencies with which incumbents perform core technical activities that are important for their jobs. Contextual performance is defined as individual efforts that are not directly related to their main task function but are important because they shape the organizational, social, and psychological context that serves as the critical catalyst for task activities and processes (Werner, 2000). Most employees expect to gain higher wage grades as a result of their higher job performances.

Job evaluation is a managerial tool for determining basic pay. Performance-related pay is designed to reward good performance in a given job or task (Sandberg, 2017). Organizations have motivated employers to shift their compensation paradigms from a traditional job-based pay to performance-based pay to achieve their strategies and goals. Under this new pay system, employers have allocated extra reward based on employees' performance such as merit, skills, knowledge, competency and/or productivity. Many researchers recognize that the implementation of this pay system brings more positive impacts than job-based pay because it may strongly attract, motivate and retain high performing employees to improve job efficiency and productivity, as well as maintain and enhance organizational competitiveness in an era of globalization (Ismail, Razak, and Ibrahim, 2016). The general principle is that performance-related pay is based on job performance which is usually a certain percentage of an employee's base pay.

This study is an attempt to create a combined score including job evaluation, performance evaluation to measure employee's task and contextual behaviors, and employee characteristics. The basic outlet is to reach a job-related score for each component and to create a wage level from the overall score for an employee. The total wage is composed of a basic pay derived from a job score and three variable rewards including (i) a revision satisfied with task performance, (ii) a reward linked to contextual performance, and (iii) an extra pay for employee characteristics. In this study, we will develop a scheme converting a performance score to a job point. The knowledge and skills reflecting how an employee performs the demands of his/her current job in terms of seven job evaluation factors were designed as task performance criteria and labeled conceptually very similar to associated job factors. The model was implemented in a middle-sized manufacturing company for blue-collar jobs.

2. Implementing the job evaluation system

2.1 Job evaluation

Job evaluation is a systematic procedure used to determine the relative worth of a job. The practice of job evaluation based on a theory of wage determination that set wages according to the principle of "equal pay for equal work". In a word, wages are based on the attributes of a job rather than an individual incumbent. This procedure aims to develop an internally consistent job hierarchy to achieve an appropriate pay structure to both management and labor (Morgeson, Campion and Maertz, 2001). The greater the value of a job within an organization, the higher the wage. It also enables the design and establishment of human resources improvement procedures and fair reward systems. The role of job evaluation in salary administration

has, hence, grown in importance as more organizations have attempted to implement comparable worth policies (Hahn and Depboye, 1988). Job evaluation has been in common use by many large companies and also governments (e.g. Department of Health in the UK), since World War II, although small firms are less apt to use it (England, 1999).

A number of approaches have been developed and implemented for job evaluation. There are two main evaluation approaches as analytical and non-analytical. The most comprehensive method used in job evaluation is the point-factor method. Job point in a typical point factor job evaluation plan is the sum of each factor rating of the plan. In point factor job evaluation method, factors are classified into four groups; skill, responsibility, effort, and working conditions. Each one has some factors such as education, knowledge for the skill-oriented category. Depending on the preference of the company, these factors can be weighted differently. There are two common methods of weight factors. The first one is selecting weights based on the subjective or rational ground. Evaluation committee basically determines factor weights based on their collective judgments. The other is to derive factor weights as a result of an optimization method such as linear programming or statistical modeling.

Most of the job evaluation studies (Charnes, Cooper and Ferguson, 1955; Gupta and Ahmed, 1988; Ahmed, 1989; Pittel, 1999; Das and Garcia-Diaz, 2001) have focused on the weighting the factors. Kahya (2006a) determined the factor weights with the interview method in a metal industry company in Turkey. Dağdeviren, Akay, and Kurt (2004) and Kahya (2006b) utilized the Analytic Hierarchy Process (AHP) in the job evaluation process to obtain the factor weights.

In recent studies, Kareem, Oke, Atetedaye, and Lawal (2011) used a point rating mathematical model to determine the appropriate wages. Shunkun and Hong (2011) and Chen and Jiang (2011) used an AHP method to determine the factor weights. Dogan, Onder, and Demir (2014) aimed to redetermine the importance of main and subfactors used in point factor method by 20 human resource professionals located in different sectors. They found that the results were quite close to the values in the job evaluation system developed by the Turkish Metal Industry Employer's Union. In order to establish a reasonable and scientific internal pay system, Sun and Luo (2013) presented an in-depth study on the

application process of the point-factor job evaluation approach. The study aimed to determine the factor weights using the AHP method.

Kutlu, Ekmekçioğlu, and Kahraman (2013) and Kutlu, Behret, and Kahraman (2014) proposed a multi-criteria fuzzy approach for a job evaluation problem. In Kahya (2018)'s study, a salary model was developed to create a wage level from overall score consisting of job evaluation, employee characteristics, and job performance to ensure wage fairness and also enhance employee' satisfaction. The model was implemented in a middle-sized manufacturing company for white-collar jobs. Several recent studies (e.g., Bender and Pigeyre, 2016; Sandberg, 2017) have examined the validity and effect of a job evaluation system on wages and the use of job evaluation.

2.2 Job evaluation process

This study was conducted in a medium-sized manufacturing company. The company management decided to adopt a new personnel evaluation system for the blue-collar staff to enhance employee's perceptions of wage satisfaction and fairness.

The implementation process of a job evaluation process in a company has been outlined by some authors (e.g. Morgeson et al., 2001). There exist a number of steps to develop and implement the wage system in any organization as given below.

2.2.1 Compensation committee

In the job evaluation process, the first step is to set up a compensation committee to manage the company's strategic compensation policy. In most of the cases, evaluation is the task of a committee composed of managers. Experts suggest that seven to nine members make a workable group. Too few are too cozy and not enough of a database; too many can fragment the conservation or even make it unruly. The evaluation committee consisted of managers from the departments where blue-collar employees work and also HRM manager.

Some job evaluation tools in use in the country were summarized to the committee in a meeting. After considerable discussion, they decided that the point factor job evaluation system is easy to understand and to apply.

2.2.2 Factors and levels

In Turkey, Metal Industry Job Grading System (MIJGS) (1996), the publication of the MESS (Turkish Employers' Association of Metal Industries), for blue-collar jobs in the metal industry in Turkey, was prepared in 1982 and expanded in 1996. Almost all the metal manufacturing companies joining to MESS have organized their job evaluation systems according to MIJGS. In MIJGS, job definitions, levels' definitions for each factor, job scores and wage grades for about 400 benchmark (key) jobs were evaluated. Twelve factors in the system are categorized into four groups;

a) Skill (including four factors; basic knowledge and education, experience, skill, decision making),

b) Responsibility (including four factors; machine and equipment, material and product, manufacturing, hazards with others),

c) Effort (including two factors; mental, physical) and

d) Working conditions (including two factors; environmental conditions, hazards).

According to HRM experts who implemented the system to companies, MIJGS has two important drawbacks. First, the level definitions which are open to interpretation to permit any accurate measurement and factors used to evaluate the jobs have not been revised since 1982. However, as a result of development in technology, increment in education level and improvement in working conditions, the definitions of some factors (e.g. knowledge, environmental conditions, hazards) have become out-of-date. Secondly, the weights in the plan are too general and inconstant and also each factor in a category has almost equal weight, so it is

avoided that one factor stands out as more important than others. It is clear that the system is insufficient to measure jobs in the metal industry.

In a meeting, the committee evaluated the consistency of the MIJGS system in terms of the factors and their weights in the plans implemented by some companies. The appropriateness of the factors was discussed to ensure that all significant job features can be fairly measured. A revision on two factors was suggested; "Knowledge" factor in the system measures all the forms of knowledge to fulfill the job responsibilities satisfactorily. This includes theoretical and practical knowledge; professional, specialist or technical knowledge associated with the job. It was separated into two factors; "Knowledge" and "Education" to not only measure much more fairly jobs but also consider employee' education degree which can be lower or higher than job level. A new factor, "Concentration" was added to the plan to measure the effort required for a job. In the MIJGS, the weights of the factor categories were considered as 40%, 20%, 20%, and 20%, respectively. The factors in each category were equally weighted to avoid that a factor is deemed more important than any other, which is unusual because some have greater importance than the others. The committee weighed the factors in terms of their importance to the overall work of the jobs via a Delphi technique in consideration with the weights in the MIJGS and elsewhere. The final weights were achieved by coming to an agreement in the next meeting (see Table 1). Kahya (2006a) reviewed all the job evaluation plans used in the metal sector companies in the country and then revised the level definitions in the MIJGS system to ensure that they were well understood. The level definitions in this study were taken from Kahya (2006a).

Table 1
Job Evaluation Factors and Their Level Points

Category	Factor	Point	1	2	3	4	5	6
Skill	Education	90	30	60	70	90		
	Knowledge	70	20	30	45	70		
	Experience	100	10	20	30	60	100	
	Skill	110	10	15	30	60	70	110
	Decision making	50	10	20	35	50		
Responsibility	Machine	60	10	30	40	60		
	Material	50	10	25	35	50		
	Flow	30	7.5	15	22.5	30		
	Hazards with others	30	6	12	18	24	30	
Effort	Mental	70	14	28	42	56	70	
	Concentration	80	20	35	55	80		
	Physical	100	20	40	65	85	100	
Working Conditions	Environmental conditions	110	15	30	50	70	110	
	Hazards	60	6	10	20	35	60	

2.2.3 Evaluating the jobs

Forty-nine blue-collar jobs whose base duties, responsibility, skill and personal attributes necessary for successful execution are different from each other were identified to evaluate. A job analysis questionnaire including of twenty questions under fourteen job evaluation factor headings was designed to obtain current job information. The questionnaires were distributed to at least two experienced employees for each job.

Each participant was asked to fill out it by checking an appropriate alternative or answering the questions as far as possible, seeking assistance from his/her supervisor. The questionnaires were evaluated to assign the most appropriate level of each factor for a job. Evaluations were checked for consistency with the similar jobs in the MIJGS, and also the other jobs in the family or equivalent group. A consensus was satisfied with the employee' supervisor, if there was any difference of view among the results, and then all the evaluations were successfully ended. It was found that job scores varied from 227.5 to 696.0 points.

2.2.4 Job grades

The next stage is to decide the number of job grades and the point difference between the grades. Too many grades defeat the purpose of grouping; and too few grades result in jobs of widely varying importance receiving the same pay (Werther and Davis, 1993). Generally, the number of job grades in the plans is used between 8 and 12, with a point increment ranging from 45 points to 65 points (see MIJGS, 1996). In this study, we decided a wage structure with eight grades, each with a 100-points increment. The maximum point of the lowest grade, I, was 300 points. Doubtless, to say, the increments with 100 points among grades are not satisfactory to ensure a fair wage structure. With respect to highly increments, four sub-grades (labeled A, B, C, and D) having an increment with 25 points for a grade were defined as shown in Table 2.

Table 2

Grades and Sub-grades

Grade	Grade range	Sub-grades			
		A	B	C	D
I	000 – 300	000 - 225	226 - 250	251 - 275	276 - 300
II	301 – 400	301 - 325	326 - 350	351 - 375	376 - 400
III	401 – 500	401 - 425	426 - 450	451 - 475	476 - 500
IV	501 – 600	501 - 525	526 - 550	551 - 575	576 - 600
V	601 – 700	601 - 625	626 - 650	651 - 675	676 - 700
VI	701 – 800	701 - 725	726 - 750	751 - 775	776 - 800
VII	801 – 900	801 - 825	826 - 850	851 - 875	876 - 900
VIII	901 – 1000	901 - 925	926 - 950	951 - 975	976 - 1000

3. Job performance

It was identified two broad classes of employee's behavior; task performance and contextual performance.

3.1 Task performance

Borman and Motowidlo (1993) suggested that task performance relates to the proficiencies with which incumbents perform core technical activities that are important for their jobs. When employees use technical skills and knowledge to produce goods or service through the organization's core technical process, or when they accomplish specialized tasks that support these core functions, they are engaging in task performance (Van Scotter, 2000). A large body of research has shown that performance evaluation and reward system can significantly influence employee's behavior (Young and Selto, 1993).

Desirable criteria to measure employee performance depends on the nature of the job. Various attempts to reveal criteria have sprung up in the literature (e.g., Viswesvaran and Ones, 2000). In this study, the aim is not an attempt to create task performance criteria which should be used to assess employees. We will develop a scheme converting a performance score to a job point. The knowledge and skills reflecting how an employee performs the demands of his/her current job in terms of seven job evaluation factors were designed as task performance criteria and labeled conceptually very similar to associated job factors (see Appendix 1).

Each criterion has five scales ranging from "1"=" Much more below average" to "5"=" Much above average, extremely likely". An employee's performance score for a criterion was assessed with scale 3 (average) when the employee accomplishes task activities and processes with a desirable effort. If that's so, the employee does not get a reward. The principle to reward an employee who has the highest performance scale ("excellent") for a criterion is that the performance score (point) is the difference between the base and next level points for a related factor. This principle presumes that an employee who performs a job with a factor level can not show higher performance than the effort required for the next factor level. The reward for performance scale 4 (or 2) is half of the difference between base and next (or previous) level points. As it can be seen in Appendix 1, one scale improvement in "Job knowledge" criterion triggers a reward ranging from 5 points to 12.5 points for scale 4, and from 10 points to 25 points for scale 5 depending on the factor level required for a job. It indicates that the reward does not only depend on the employee but also on the job level.

Let's illustrate the task performance of an operator who performs the "CNC machining" job (411,50 points, III/A grade). Sum of the level points matched to the job for seven factors is 210 points (Table 3). It is assumed that the performance reward will be zero if the operator is rated with a standard performance (scale "3") for a criterion. The "Knowledge" factor level of the job is "3" with 45 points. For the rated with "5", "much more average" for the "Job Knowledge" criterion, the reward will be +25 points because the point for level "4" of the factor is 70 points (see Table 1). Similarly, for the rated with "1",

"much below average", the score is -15 points because of 30 points for the factor level "2". It is assumed that, for scale "4" (or "2"), the performance

reward score will be +12.5 (or -7.5) points which are half of the maximum (or minimum) score.

Table 3

Task Performance Scores For "CNC Machining" Job

Job factors	Level	Point	Task performance criteria	Performance scores				
				1	2	3	4	5
Knowledge	3	45	Job Knowledge	-15	-7.50	0	+12.50	+25
Skill	4	60	Overcoming obstacles to complete a task	-30	-15	0	+5	+10
Decision making	2	20	Decision making	-10	-5	0	7.50	+15
Machine responsibility	2	30	Protecting the machine, tools, and etc.	-20	-10	0	+5	+10
Material responsibility	1	10	Working without mistakes	-10	-5	0	+7.50	+15
Concentration	2	35	Concentrating to the duties	-15	-7.50	0	+10	+20
Hazards	2	10	Working in safety	-4	-2	0	+5	+10
Total		210		-104	-52	0	+52.50	+105

3.2 Contextual Performance

Contextual performance is defined as individual efforts that are not directly related to their main task function but are important because they shape the organizational, social, and psychological context that serves as the critical catalyst for task activities and processes (Werner, 2000). Common examples of contextual performance behaviors include helping co-workers, volunteering for a task, and defending the organization. Bateman and Organ (1983) suggested that contextual performance might show an employee's willingness to help the organization. Voluntary behaviors may also be used to demonstrate skills and ability that are required for advancement but are not needed in the employee's present job (Van Scotter, 2000).

Coleman and Borman (2000) settled such behaviors on three groups (or five sub-groups);

i. **Interpersonal citizenship performance** (behaviors that assist, support, and develop organization members through cooperative and facilitative efforts that go beyond expectations)

ii. **Organizational citizenship performance** (citizenship behaviors that demonstrate the commitment to the organization through allegiance and loyalty to the organization and

organization objectives, and compliance with organizational rules, policies, and procedures)

iii. **Job/Task Conscientiousness** (extra efforts that go beyond role requirements, demonstrating dedication to the job, persistence, and the desire to maximize one's own job performance).

Based on a review of the available literature, twenty-six contextual performance criteria were generated from previously cited literature (e.g., Coloman and Borman, 2000; Kahya and Çemrek, 2017) and performance evaluation tools implemented by the companies in Turkey (see Appendix 2).

Supervisors use a five-point scale ranging from 1=" fails to meet expectations" to 5=" clearly and consistently exceeds expectations to rate their employees' performance. The scale weights rise in arithmetic increments. When an employee is rated with an average performance, scale 3, for each criterion, performance score will be 60.00%, and then s/he will not get a wage increase, a reward.

In this study, a function to convert a performance score (%) to a job evaluation point was described. It was assumed that if an employee has an excellent (very poor) performance, performance score will be a positive (negative) value that is half of the job score. In a word, the performance-based score (or wage) for an employee is between -50% and +50%

of the job point. Clearly, the performance-based wage depends on both the job and employee's performance. For instance, when the performance score of an employee, promoted to a job with 420 points, III/A grade, is able to reach to a score among -210 points (minimum) and +210 points (maximum), and then the new wage grade may vary from I/A to V/B grade with 630 points, theoretically. This scheme was developed by Kahya (2018).

The transformation function can be written as

$$PJP = \left[\frac{PP - 60}{40} \right] * 0.5 * JP \qquad (1)$$

Where PJP is the performance score based on job score, JP is the job evaluation score and PP is the employee's performance score (%) (Kahya, 2018).

4. Creating a wage level from the overall score

In some wage systems involving a combination of a fixed wage and variable component (e.g. Shibata, 2000), generally, each pay band has two wage zones. The first, which has two or three pay points to be jumped up, can be applicable for a year of appointment. The purpose is to check that employee can meet the basic demands of his/her post on that pay band. Its focus is knowledge and skills that need to be applied from the outset in a post coupled with the provision of planned development in the foundation period of up to twelve months. Each pay

band has some (promotion) wage points (increments) changing between wage bands informal wage band zone. Each year, an employee has a development review meeting with line manager and agrees on the personal development plan. If s/he successfully develops his/her skills, s/he will be promoted up the next point, till the maximum wage point in the pay band. In that kind of a system, when an employee moves up to the highest wage point, it becomes difficult for an employee who has stayed at the maximum to receive a wage increase.

In this study, it will be suggested a new wage structure focused on the sub-grade score such that the higher the job score, the more wage for an employee. A way of doing this increment is by partial linear increments. We define that,

a   : a fixed increment,
S_{min} : The wage of grade I/A

Increments among sub-grades are determined with "a" increment for first three grades, "1.5a" for the next three grades, and "2.5a" for the others. This progression deduces that wage increment traces a structure with much more wage for a job with higher point. In this structure, while the wage of the first sub-grade, I/A, is S_{min}, the other sub-grade wage can be determined by computing consecutively as given in Table 4. The new wage of an employee can be computed easily depending on two parameters, either S_{min} and fixed "a", or S_{min} and a sub-grade wage.

Table 4
Proposed Wages For Sub-Grades

Grade	Point range	Sub-grades			
		A	B	C	D
I	000 – 300	S_{min}	$S_{min} + a$	$S_{min} + 2a$	$S_{min} + 3a$
II	301 – 400	$S_{min} + 4a$	$S_{min} + 5a$	$S_{min} + 6a$	$S_{min} + 7a$
III	401 – 500	$S_{min} + 8a$	$S_{min} + 9a$	$S_{min} + 10a$	$S_{min} + 11a$
IV	501 – 600	$S_{min} + 12.5a$	$S_{min} + 14a$	$S_{min} + 15.5a$	$S_{min} + 17a$
V	601 – 700	$S_{min} + 18.5a$	$S_{min} + 20a$	$S_{min} + 21.5a$	$S_{min} + 23a$
VI	701 – 800	$S_{min} + 24.5a$	$S_{min} + 26a$	$S_{min} + 27.5a$	$S_{min} + 29a$
VII	801 – 900	$S_{min} + 31.5a$	$S_{min} + 34a$	$S_{min} + 36.5a$	$S_{min} + 39a$
VIII	901 – 1000	$S_{min} + 41.5a$	$S_{min} + 44a$	$S_{min} + 46.5a$	$S_{min} + 49a$

Let's compute the new wage grade including rewards of the operator who performs "CNC Machining" job. Assume that he has a performance score of 85%. The overall score becomes 614.47 points such that

▸ 411.50 points for job evaluation
▸ +74.38 points for task performance
▸ +128.59 points for contextual performance

While the job takes place in grade III/A (see Table 2), the operator would be promoted to grade V/A. Assume S_{min}= 2,500 TL and a = 75 TL (see Table 4). The wage for III/A grade is 3,100 TL (2,500 + 8*75) and then employee's current wage level will be 3,887.50 TL (2,500 + 12.5*75) where the reward is 787.50 TL.

5. Application of the model

5.1 The wage policy of the company

The company was founded 30 years ago and has approximately 200 employees performing all the white and blue-collar jobs. Depending on the economic and financial conditions of the company, the company management raises all the wages of the blue-collar workers twice a year by a fixed rate around inflation rate based on the consumer price index of the base period. Department managers had a right to suggest an additional wage increment for an employee demonstrating higher performance, assessed subjectively by the first supervisor. These approaches decrease job satisfaction and productivity.

It was investigated the relationship between current (defined in here as "old") wages and variables (job score, seniority, and education level) to highlight the weakness of the current wage system using data received from 154 employees. Table 5, more or less, shows a view of the old system in the company and describes how the company adjusts wage policy

depending on job qualifications, and other variables. The results of the regression analyses showed that these variables explained half of the variance in wages (R^2=0.47, p<0.05, $F_{154,3}$=43.89). The other effectual factors may be age, performance, and individual attributes of an employee, and local market conditions, and etc. They also indicated that the previous system was not very fair, although the company tends to determine the wages considering MIJGS job evaluation system in the latest years. The company management tends to increase the employee wages which rely heavily on employee's seniority. Seniority and job score have a moderate but significant positive effect on wages. However, seniority was negatively and significantly correlated with education level. The majority of the employees (68.81%) working much more than five years had graduated from high school or under. Recently, the company prefers to hire such employees that they had graduated from occupational high schools. As predicted, there was no significant relationship between education level and wage and job score.

As can be seen in Figure 1, in general, the higher job score increases, the higher wage rises. Minimum wages in some regions pointed out those employees who show low performances in their jobs. Except for some qualified jobs, less experienced than two years or inexperienced workers who perform the jobs scored less than 450 points receive a wage level at around minimal wages.
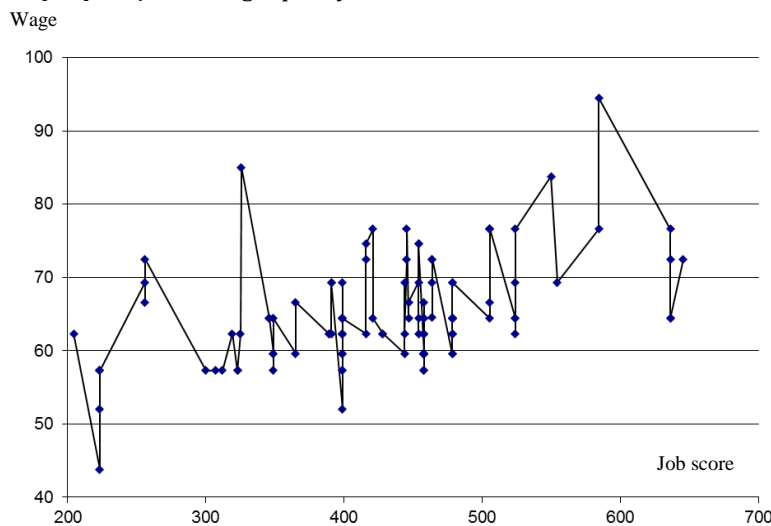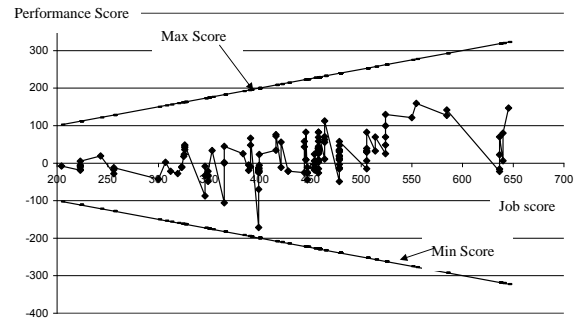

Figure 1. Available Wages Versus Job Scores
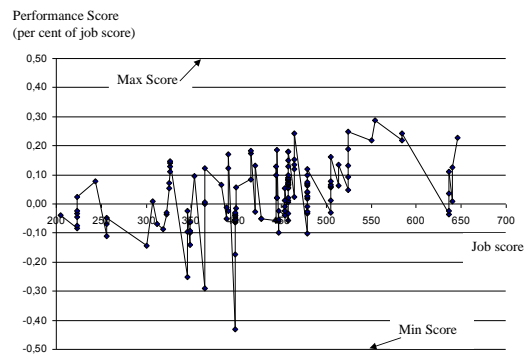
5.2 Contextual performance evaluations

The committee selected sixteen criteria of twenty-six to measure contextual behaviors, which were important and linked to the company's vision and values. The criteria were weighted at the beginning of the evaluation period in terms of their importance to the jobs as seen in Appendix 2. An evaluation form including employee (name, id. no), and job (position, name, department, etc.) characteristics, and scales of the criteria to check an appropriate one was designed. The forms were delivered to supervisors to rate the employees. The scores were on a five-point Likert scale ranging from "1", "fail to meet expectations" to "5", "clearly and consistently exceed expectations".

Performance scores of all 154 employees vary from 25.63% to 83.00%. It was significantly correlated with job score ($r=0.45$, $p<0.01$), but not with seniority ($r=0.018$), and education level ($r=0.039$) (see Table 5). Apparently, while employees who have higher performance scores took place in qualified jobs, the others in the same line were assigned to low scored jobs, if possible. For example, although the employees who perform the "Heavy welding" scored with 524 points were rated with 71.36%, the others who work at the "Light welding" job scored with 458 points were rated with 62.76% on average.

The effect of performance score on wage depends on job score for which formula was worked out with minimum and maximum ranges. Although theoretically, the maximum performance score is 50% of job score, the average score to provide a wage increment through performance was found as +2.73% (+15.54 points) (see Figure 2.a). The majority (111 employees) had a score between -10% and +10% of job score (see Figure 2.b). The figures clearly show that the higher job scores the wider performance score.

a. Based on job score

b. Percent of job score

Figure 2. Performance Scores

5.3. Task performance evaluations

Each task performance criterion was rated on a five-point Likert scale by supervisor anchored from "1" =" much below average" to "5" =" much above average, extremely likely". Lowest scale, "1", which indicates all the characteristics of the employee in terms of the related job factor is completely insufficient. In order to compute the task performance scores, a guide table exhibiting the scores for each factor was regulated as depicted in Appendix 1.

The overall score on technical proficiency is the sum of scores for these seven criteria. It was seen that the scores change from -32.50 to 63.50 points. The wage grade differences were found as follow;

Wage grade differences	-2	-1	0	1	2
The number of employees	10	30	104	10	0

The results indicated that many employees did not perform the duties and responsibilities required for their jobs to step up a wage grade. 26% of them were insufficient. Pearson correlation coefficient among task performance and job scores was 0.381, which means that there are many employees having low performance in each wage grade. Score correlated positively and significantly with "job knowledge" (r=0.747) and "skill" (r=0.750, p<0.01) as a result of having the higher performance of employees working qualified jobs, and also high weights for these criteria.

5.4 The new wages

At the new period, the company management decided to adopt the new wage system. The basic principle of the new salary system was that an employee' wage can rise among 5% and 15% of the former wage and average increment was restricted with increment budget, 10%. The management also demanded that individual plus attributes such as higher education level, and seniority were taken into consideration for wage increments. The committee discussed additional points to motive the employees

in accordance with these attributes and agreed that they were point difference between two levels for each higher education level, 5-10 points for each plus experience year restricted by 15 years. Plus, attributes satisfied an increment ranging from -52.50 to +70.00 points.

The overall score for an employee including job, performance, and individual attributes was computed, and it was seen that the scores took place from 203.78 to 809.85 points. The average score (482.94 points) consists of

- ➢ 428.47 points for job evaluation (88.73%)
- ➢ 32.27 points for individual attributes (6.68%)
- ➢ 15.61 points for contextual performance (3.23%)
- ➢ 6.58 points for task performance (1.36%)

These values imply a weak impact of performance evaluations on wage increase, which is only 4.59% of the overall score. Job score still had a greater influence on wage increases. The wage grade differences among job and overall scores were found as follow;

Grade differences	-5	-4	-3	-2	-1	0	1	2	3	4	5
The number of employees	2	1	1	3	7	26	24	26	24	17	23

The results indicate that the majority of employees climb up much more than one wage grade. Only 9.09% of them downgrades from the job grade.

For the new wage system involving these four components, the minimum wage (grade I/1) has been accepted as S_{min}=TL 2,500, in consideration with labor wage determined by the government. Many wage simulations were conducted on data to create new wages under basic principles. The most appropriate wage model was found to be

S_{min} =2,500 TL

a = 75 TL (fixed for each sub-grade), and

The rate of average wage increment = 8.85%

As a result of the new wage system, and evaluation system, it is required to see how wage increase rates

among employees are becoming; i) exactly 5%, ii) 5-15%, and iii) exactly 15%, each of which reveals the reliability of new wages. According to the model, the wage increase rates were found such that;

The rate of increase	5%	5%-15%	15%
The number of employees	54	66	34

42.86% of employees in the company were paid a fair wage generated by the new wage system. However, 22.08% of them earned less than a fair wage. Similarly, one-three of them had much more wage than proposal wage. Consequently, half of the employees in the company reached the wages created by the new wage system. It is expected that

these deficiencies can vanish in the next period if the new system is used for wage regulation.

Table 5 reveals the relationship between new wage and eight variables (old wage, new wage, job score, task performance score, contextual performance score, individual attributes score, overall score, seniority, and education level) and also the success of the new wage system.

Table 5

Pearson correlation coefficients (n=154)

	Education Level[+]	Seniority	Job score	Task performance	Contextual performance	Individual attributes	Overall score	Old wage
Education level[+]	-							
Seniority	-0.451**	-						
Job score	0.125	-0.336	-					
Task performance	-0.132	0.083	0.384**	-				
Contextual per.	0.039	0.018	0.450**	0.497**	-			
Individual attributes	-0.102	0.655**	0.067	0.016	0.036	-		
Overall score	0.065	0.114	0.909**	0.571**	0.730**	0.231**	-	
Old wage	0.094	0.484**	0.387**	0.322**	0.336**	0.523**	0.521**	-
New wage	0.127	0.392**	0.515**	0.409**	0.461**	0.463**	0.654**	0.970**

[+] Education level; 1: high school or under, 2: occupational high schools, 3: technical high schools, 4: junior college (two-year university)
**Correlation is significant at the 0.01 level (2-tailed).

Comparing the differences between correlation coefficients under old and new wage systems, the following results are essential to reveal:

i.   The new wage had the highest correlation with the old wage (r=0.970) and was strongly correlated with an overall score (r=0.654). The effects of the overall score components and the overall score on wage were similar to each other (r=0.409-0.654). Job score was much more strongly related to the new wage (r=0.515) than the old wage (r=0.387). It can be concluded that the new wage system is much more satisfactory than the former.

ii. Seniority had an important effect on wages in the former system, the effect decreased to 0.392 from 0.484. It had a weak effect on performance, however, significantly correlated with employee characteristics, as expected.

iii. The supervisors were rated their employees without considering their characteristics; seniority, and education level. The coefficients varied from 0.005 to 0.132.

iv. Job score had an important effect on the overall score (r=0.909)

v.   Task performance was moderately correlated with contextual performance (r=0.497). The preferences of the supervisors were partly independent of each other.

6. Conclusion

Virtually all private sector organizations in the United States (and in many other countries) use multiple pays for performance plans with the design varying as a function of factors such as job level, type of occupation, the way the work is organized, and the organization's strategy (Gerhart and Fang, 2014). There is a common belief that the traditional wage-employment relationship, where employees are rewarded simply by straight salaries (or less frequently nowadays piece rates) is not ideal for a modern competitive economy. Companies can establish different types of performance pay systems such as profit-related pay, individual performance-related pay, skill or competency-based pay, team-based performance-related pay, and etc. Individual performance-related pay rewards the employee for reaching a specific performance target. The main objectives of this system are both to increase individual performance and to reward the employee who has higher performance. It is more common to think of schemes involving a combination of fixed salary and a variable component that is performance-dependent (Conyon et al., 2001). The suggestion of this study is focused on the performance-based wage system. We developed a wage system producing employee wage combining job score, employee' task and contextual performance scores, and individual attributes.

Different reward strategies are likely to have different effects on the company's outcomes.

Strategies to consider job performance and employee characteristics have focused on extra pay for each different component, a percentage of basic pay, or additional pay for each different level. These suggestions do not motivate employees. The scheme in this study was to create a wage level from overall score consisted of job evaluation, job performance, and employee characteristics in order to ensure wage fairness and also enhance employee' satisfaction. Job score produces a basic pay. There will be two extra pay for employees who have higher characteristics than the required level for the related job. Job performance was measured with how an employee achieves the task activities. These components were integrated into a composite score to obtain a reward. The basic superiority of the model developed in this study was that an overall score based on job point was produced from the components; job evaluation and job performance.

The system guarantees that each employee's wage is restricted to his/her performance. For instance, the employee's score mentioned in Table 3, theoretically, varies from -104 (lowest task performance) to 105 (highest task performance) for task performance and from -205.75 points (lowest contextual performance) to 205.75 points (highest contextual performance) for contextual performance. It means that his/her score linked with wage theoretically can be among 101.75 points (lowest task and contextual performance) and 722.25 points (highest task and contextual performance). His/her wage grade can take place between I/A and VI/A. These grade differences motivate employees enough to develop their task and contextual behaviors. Although an employee can reach a reward to be 50% of the job score, the average score was found only 2.73%, which is 4.59% of the overall score. In order to establish a more performance-based wage, the limits must be extended to ±100% of job score or employees having a standard performance can take a reward.

In this study, the aim was not to drive the best task performance criteria to assess employees. The second type of task performance such as using technical documentation, repairing, working hard, and overall technical performance can also be suggested to assess an employee. In this case, the effect of these criteria can be computed as contextual criteria were. It is not recommended to use all the criteria for evaluating the employees' performance because of spending intensive time. A set of criteria among 10 and 16 should be an excellent number for assessing the employees.

References

Ahmed, N.U. (1989). An analytic technique to develop factor weights in job evaluation. *The Mid-Atlantic Journal of Business*, 25(5), 1-6. Retrieved from https://search.proquest.com/openview/8dcccde4940563868509b5a875ca7fdd/1?pq-origsite=gscholar&cbl=24292

Bateman, T.S., & Organ, D.W. (1983). Job satisfaction and the good soldier: The relationship between affect and employee citizenship. *Academy of Management Journal*, 26, 587-595. doi: https://doi.org/10.5465/255908

Bender, A.F., & Pigeyre, F. (2016). Job evaluation and gender pay equity: a French example. *Equality, Diversity, and Inclusion: An International Journal,* 36(4), 267-279. doi: https://doi.org/10.1108/EDI-07-2015-0062

Borman, W.C., & Motowidlo, S.J. (1993). Expanding the criterion domain to include elements of contextual performance. In N.Schmitt and W.C. Borman (Eds), *Personnel Selection in Organizations* (pp. 71-98), New York, Jossey-Bass.

Coleman, V.I., & Borman, W.C. (2000). Investigating the underlying structure of the citizenship performance domain. *Human Resource Management Review*, 10(1), 25-44. doi: https://doi.org/10.1016/S1053-4822(99)00037-6

Charnes, A., Cooper, W.W., & Ferguson, R.O. (1955). Optimal estimation of executive compensation by linear programming. *Management Science*, 1(1), 138-151. doi: https://doi.org/10.1287/mnsc.1.2.138

Chen, L.F., & Jiang, W.D. (2011). Managerial job evaluation based on point-factor method and IAHP in enterprises. *Soft Science*, 11(4), 100-105. Retrieved from http://en.cnki.com.cn/Article_en/CJFDTotal-XUXI201104023.htm

Conyon, M., Peck, S., & Read, L. (2001). Performance pay and corporate structure in UK firms. *European Management Journal*, 19(1), 73-82. doi: https://doi.org/10.1016/S0263-2373(00)00072-4

Dağdeviren, M. Akay, D., & Kurt, M. (2004). İş değerlendirme sürecinde analitik hiyerarşi prosesi ve uygulaması. *Gazi Üniversitesi Mühendislik - Mimarlık Fakültesi Dergisi,* 19(2), 100-105. Retrieved from https://dergipark.org.tr/gazimmfd/issue/6660/88912

Das, B., & Garcia-Diaz, A. (2001). Factor selection guidelines for job evaluation: A computerized statistical procedure. *Computers and Industrial Engineering*, 40, 259-272. doi: https://doi.org/10.1016/S0360-8352(01)00028-6

Dogan, A., Onder, E., & Demir, R. (2014). Assessment Turkish HR professionals on determining the importance of factors in point factor as a method of job evaluation. *European Journal of Business and Management*, 6(29), 1-13. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2541652

England, P. (1999). The case for comparable worth. *The Quarterly Review of Economics and Finance*, 39, 743-755. doi: https://doi.org/10.1016/S1062-9769(99)00026-5

Gerhart, B., & Fang, M. (2014). Pay for (individual) performance: Issues, claims, evidence and the role of sorting effects. *Human Resources Management Review*, 24, 41-52. doi: https://doi.org/10.1016/j.hrmr.2013.08.010

Gupta, J.N.D., & Ahmed, N.U. (1988). A goal programming approach to job evaluation. *Computers and Engineering*, 14, 147-152. doi: https://doi.org/10.1016/0360-8352(88)90023-X

Hahn, D.C., & Depboye, R.L. (1988). Effects of training and information on the accuracy and reliability of job evaluations. *Journal of Applied Psychology*, 73, 146-153. doi: http://dx.doi.org/10.1037/0021-9010.73.2.146

Ismail, A., Razak, M.R.A., & Ibrahim, Z. (2016). Performance-based pay management as a determinant of extrinsic and intrinsic job satisfaction. *International Conference on Ethics of Business, Economics and Social Science*, 104-114.

Kahya, E. (2006a). Metal iş kolunda bir işletme için işdeğerleme sisteminin geliştirilmesi. *Endüstri Mühendisliği*, 17(4), 2-21. Retrieved from https://www.mmo.org.tr/sites/default/files/a9d121cd9c3a183_ek.pdf

Kahya, E. (2006b). Revising the metal industry job evaluation system for blue-collar jobs. *Compensation & Benefits Review,* 38(6), 49-63. doi: https://doi.org/10.1177/0886368706292541

Kahya, E . (2018). A wage model consisted of job evaluation employee characteristics and job performance. *Pamukkale Üniversitesi Mühendislik Bilimleri Dergisi*, 24 (4), 720-729. Retrieved from https://dergipark.org.tr/pajes/issue/38891/454107

Kahya, E. & Çemrek, F. (2017). An Investigation On The Ratings From Four Sources For Different Positions in A 360 Degree Feedback System. Eskişehir Osmangazi Üniversitesi İİBF Dergisi, 12(3), 49-64. Retrieved from https://dergipark.org.tr/tr/download/article-file/350309

Kareem, B., Oke, P.K., Atetedaye, A.F, & Lawal, A.S. (2011). Development of a point rating model for job-manpower evaluation in an organization. *Journal of Applied Mathematics & Bioinformatics,* 1(1), 195-206. Retrieved from http://www.scienpress.com/Upload/JAMB/Vol%201_1_15.pdf

Kutlu, A.C., Ekmekçioğlu, M., & Kahraman, C. (2013). A fuzzy multi-criteria approach to point-factor method for job evaluation. *Journal of Intelligent & Fuzzy Systems*, 25, 659-671. doi: https://doi.org/10.3233/IFS-120673

Kutlu, A.C., Behret, H., & Kahraman, C. (2014). A fuzzy inference system for multiple criteria job evaluation using fuzzy AHP. *Journal of Multiple-Valued Logic&Soft Computing*, 23(1/2), 113-133.

Metal Industry Job Grading Sysetm [Metal Sanayii İş Gruplandırma Sistemi] (1996), Türk Metal Sanayiciler Sendikası Yayını, Ankara.

Morgeson, F.P., Campion, M.A., & Maertz, C.P. (2001). Understanding pay satisfaction: The limits of a compensation system implementation, *Journal of Business and Psychology*, 16(1), 133-149. Retrieved from https://link.springer.com/article/10.1023/A:1007848007459

Pittel, M. (1999). Recalibrating point factor job evaluation plans to reflect labor market pay levels. *Workspan*, 42, 29-33.

Shibata, H. (2000). The transformation of the wage and performance appraisal system in a Japanese firm. *International Journal of Human Resource Management*, 11(2), 294-313. doi: https://doi.org/10.1080/095851900339882

Sandberg, P.K. (2017). Intertwining gender inequalities and gender-neutral legitimacy in job evaluation and performance-related pay. *Gender, Work & Organization*, 24(2), 156-170. doi: https://doi.org/10.1111/gwao.12156

Shunkun, Y., & Hong, T. (2011). Application of point method in job evaluation. IEEE Conference Publications of the International Conference on

Management and Service Science (MASS), China, August 12-14.

Sun X, & Luo N. (2013). Study on the effectiveness of point-factor job evaluation system in operation position. *Communication in Information Science and Management Engineering*, 3(3), 154-160.

Van Scotter, J.R. (2000). Relationships of task performance and contextual performance with turnover, job satisfaction, and affective commitment. *Human Resource Management Review*, 10(1), 79-95. doi: https://doi.org/10.1016/S1053-4822(99)00040-6

Viswesvaran, C., & Ones, D. S. (2000). Perspectives on models of job performance. *International Journal of Selection and Assessment*, 8, 216–226. doi: https://doi.org/10.1111/1468-2389.00151

Werner, J.M. (2000). Implications of OCB and contextual performance for human resource management. *Human Resource Management Review*, 10(1), 3-24. doi: https://doi.org/10.1016/S1053-4822(99)00036-4

Werther, W.B. & Davis, K. (1993). *Human Resources and Personnel Management*. İstanbul : McGraw-Hill.

Wilde E. (1992). A job evaluation case history. *Work Study*, 41(2), 6-11. doi: https://doi.org/10.1108/EUM0000000002663

Young, M., & Selto, F. (1993). Implementing performance measures and new management and manufacturing practices in a just-in-time manufacturing environment. *Journal of Management Accounting Research*, (Fall), 300-326.

Appendix 1. Task performance scores

Job factors	Point	Level	Task performance criteria	No of Level	Point	Performance scores				
						1	2	3	4	5
Knowledge	70	4	Job Knowledge	1	20	-20	-10	0	+5	+10
				2	30	-10	-5	0	+7.50	+15
				3	45	-15	-7.50	0	+12.50	+25
				4	70	-25	-12.50	0	+12.50	+25
Skill	110	6	Overcoming obstacles to complete a task	1	10	-10	-5	0	+2.50	+5
				2	15	-5	-2.50	0	+7.50	+15
				3	30	-15	-7.50	0	+15	+30
				4	60	-30	-15	0	+5	+10
				5	70	-10	-5	0	+20	+40
				6	110	-40	-20	0	+20	+40
Decision making	50	4	Decision making	1	10	-10	-5	0	+5	+10
				2	20	-10	-5	0	7.50	+15
				3	35	-15	-7.50	0	7.50	+15
				4	50	-15	-7.50	0	7.50	+15
Machine responsibility	60	4	Protecting the machine, tools, and etc.	1	10	-10	-5	0	+10	+20
				2	30	-20	-10	0	+5	+10
				3	40	-10	-5	0	+10	+20
				4	60	-20	-10	0	+10	+20
Material responsibility	50	4		1	10	-10	-5	0	+7.50	+15
				2	25	-15	-7.50	0	+5	+10
				3	35	-10	-5	0	+7.50	+15
				4	50	-15	-7.50	0	+7.50	+15
Concentration	80	4	Concentrating to the duties	1	20	-20	-10	0	+7.50	+15
				2	35	-15	-7.50	0	+10	+20
				3	55	-20	-10	0	+12.50	+25
				4	80	-25	-12.50	0	+12.50	+25
Hazards	60	5	Working in safety	1	6	-6	-3	0	+2	+4
				2	10	-4	-2	0	+5	+10
				3	20	-10	-5	0	+7.50	+15
				4	35	-15	-7.50	0	+12.50	+25
				5	60	-25	-12.50	0	+12.50	+25

Appendix 2. Contextual performance criteria

Category	Sub Category	Criterion	Weights
Interpersonal Citizenship	Altruism	Assisting co-workers with personal matters	4.00
		Altruism in helping individual organization members	
	Conscientiousness	Spending the resources effectively	
		Cooperating with other organization members	4.00
		Engaging responsibly in meetings and group activities.	12.00
Organizational Citizenship	Allegiance/Loyalty	Not complaining about organizational conditions	
		Keeping others engaged in individual problems	
		Treatment the supervisor with respect	4.00
		Exhibiting punctuality arriving at work on time in the morning and after lunch breaks	2.00
		Absenteeism	
		Participating in a training meeting	
		Suggesting procedural, administrative, or organizational improvements	4.00
	Compliance	Display proper appearance or bearing	
		Following organization rules and procedures	6.00
		Exercise personal discipline and self-control	
		Participating responsibility in the organization	10.00
		Complying with organizational values or policies	3.00
Job Dedication		Carrying out tasks in time	4.00
		Effectively handling new situations	
		Volunteering to carry out tasks not part of own job	
		Putting extra effort	6.00
		Not making errors	9.00
		Working hard with extra effort	15.00
		Working systematically	6.00
		Taking the initiative to solve a work problem	8.00
		Engaging in self-development to improve own effectiveness	3.00