

## Multidimensional Approach of Job Performance: Toward a Prediction Model

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**Abstract** This paper investigated the interacting effect of the employee's job competency, extra-role performance and three persistence factors (current purposes pursuing - CPP), recurrence of unattained purposes - RUP, and long term purposes pursuing - LTTP) on the job performance of a sample of 200 Romanian employees (participation rate: 86.2%). We used correlation analysis, prediction models, and, as tools, competency assessment checklists developed by means of the Competency Elicitation Interview (Faix et al., 1991), Robertson's performance scales for job performance (1996, 1997), Smith's scale for extra-role performance (1983) and a persistence scale (Constantin, 2010). Results support the idea that job performance can be approached from a multidimensional point of view. The significance of extra-role performance and two persistence factors (current purposes pursuing-CPP, and long term purposes pursuing-LTTP) was successfully established, highlighting the important role they have in relationship with job performance, as valid predictors of supervisory ratings of employees' performance. Furthermore, job competencies alone seem to be necessary but not sufficient to predict high levels of job performance. Main limitations (such as those who refused to participate they didn't had comparable demographics with those who agreed to participate) along with main findings are being discussed.

**Key Words:** job performance, job competency, extra-role performance, persistence

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### 1. Introduction

Literature abounds in definitions, models and methods for the assessment and understanding of the job performance. Theories and practices were developed to enable HR professionals to directly enhance job performance (Holton & Yamkovenko, 2008). Unfortunately, each author defines job performance in a significantly different manner. The debate regarding the nature of performance reveals two approaches. Some authors see the performance as being results and outcomes, and define it as the history of produced results of a certain determined professional activity or in a certain position (Ainsworth & Smith, 1993; Bernardin et al., 1995b, *apud* Robertson, Callinan & Bartram, 2002, p. 140). From this perspective, global job performance should be the sum (or average) of job outcomes. On the other hand, the most of the authors consider the job performance as the sum of behaviours that employee controls in a certain professional context (Bartram, 2000; Campbell et al., 1993; Robertson, Callinan & Bartram, 2002), which are crucial for reaching the planned individual outcomes and objectives (Bartram, 2000; 2002; Campbell et al., 1993), and which are relevant for the organizational objectives (Schmitt & Chan, 1998). If behaviours can be evaluated separately, performance is understood as an interconnected series of behaviours (Robertson, Callinan & Bartram, 2002). Others (Wu & Hou, 2010, p. 568) argue that there can be created a performance pyramid model and performance assessment should be performed based on organizational levels, job characteristics and workplace conditions. Viswesvaran & Ones (1996) argue that the influence of performance determinants is difficult to be estimated and, for most of them, the literature does not provide the percentages of job performance variance explained.

If we agree, as most of the authors, that performance can be understood as an interconnected series of behaviours and actions, then we should take into account the workplace elements which can influence these actions. At conceptual level, there are two contrasting theories useful for understanding the actions of employees (Platts & Sobótka, 2010, p. 350), namely control theory (based on formal monitoring and incentive mechanisms - people monitor and report on their performance against agreed-upon standards) and motivation theory (which implies inspiring leadership, delegated responsibility, positive working environment). Garavan (2007, p. 11) supports the idea that the most valuable employees to the firm have unique and valuable capabilities and skills, which allow the organization to differentiate from competitors and thus, there is a stringent need of a new, sophisticated definition of performance, seen as a multidimensional and pluralistic concept; he is advising authors to take into account multiple theoretical perspectives when delivering a new model for understanding performance.

The current paper aims at understanding the job performance, defined here as sum of behaviours, by exploring its relationships with job competency, extra-role performance and persistence. Job competencies represent abilities to use knowledges, skills, behaviours and personal characteristics in order to successfully perform professional tasks, specific

functions or to successfully fill in a specific role (Ennis, 2008) and „are causal-related to the efficacy and /or superior performance” (Boyatzis, 1982, p. 23). Other authors extended the competencies definition by adding the motivation to work as important element which impact the success on a professional activity (Boyatzis, 1982; Falmer & Conger, 2004; Sandberg, 2000, *apud* Ennis, 2008). Nevertheless, job competencies are, for some authors, important prerequisites of job performance (Lucia & Lepsinger, 1999; McClelland, 1973), observable dimensions of performance (Athey & Orth, 1999) or dispositions toward performance (such as motives, abilities, traits and attitudes) (Brandstatter, 1998) that can partially predict it (van den Berg, 1998). Understood as capacities, skills, knowledge and abilities, competencies are stable in time and can be used in a large range of situations. In this paper we acknowledge the fact that competencies are necessary in order to be able to perform in a professional task. However, due to its general definition that can cause sometime confusion (Woodruffe, 1992), we question and we investigate to see if competencies are sufficient in order to predict a high job performance level. In this context, we aim to investigate the influence of job competencies together with extra-role performance and persistence on job performance.

Due to the distinction between formal and informal aspects required by a position, role or job, the literature promotes the distinction between in-role performance, understood as work performance driven from the formal needs, objectives and aspects of the job, and extra-role performance. Extra-role performance refers to the informal expectations regarding the employee's behaviors in a professional context. Extra-role performance is defined as sum of extra-role behaviors which contribute to the organizational performance, but which are not formally requested by a certain job description, nor controlled or imposed (e.g.: helping the colleagues, being on time, promoting the organization in a personal or informal context, developing self), and which are complementary to the job formal requirements. Some authors refer to it as contextual performance (Van Dyne et al., 1995), organizational citizenship behaviors (Baterman & Organ, 1983; Smith et al., 1983), prosocial organizational behaviors (Brief & Motowidlo, 1986), or organizational spontaneity (George & Brief, 1992). Studies have showed that extra-role performance influence the job performance (MacKinzie et al., 1991; Nikolaou & Robertson, 2001; Tutu, 2011), and the management scoring behaviour for global performance. Moreover, some of these studies identified a relationship between extra-role performance of employees and the organizational efficacy indices. We refer to persistence as the quality of the goal-related pursuits, manifested as the tendency to remain engaged in specific goal-related activities, despite difficulties, obstacles, fatigue, prolonged frustration or low perceived feasibility (Constantin, 2010). We analyze the influence of three persistence factors: current purposes pursuing (CPP), recurrence of unattained purposes (RUP), and long term purposes pursuing (LTPP).

## 2. The Present Study

The referral literature offers many models of job performance factors. While the traditional approach relates performance and the IQ and personality traits, the current approaches promote the idea that performance is function of individual capacities and motivation. This idea was extended and theorised by Campbell (1993) who proposed a multidimensional model of performance. The declarative knowledge, procedural knowledge and motivation, as choosing behaviours, are the main performance determinants promoted by this model. Taking into account the Campbell's theoretical ideas, our research aims at investigating the influence of job competencies (as concept which also individual's knowledge) and persistence factors on the job performance.

Moreover, in accordance with the latest studies regarding the valid predictors of job performance, we intend to see if the results suggesting that extra-role performance can predict job performance (MacKinzie et al., 1991; Nikolaou & Robertson, 1999; Tutu, 2011; Waldman, 1994) would replicate. Our main objective is to test a prediction model of job performance based on job competency, extra-role performance and motivational persistence.

Thus, we have formulated the following hypotheses:

*Hypothesis 1:* Job competency matching index (calculated as difference between current job competency level and standard required job competency) and persistence factors are good predictors for job performance. Operationally, we intend to test if persistence factors will also correlate with job competency matching indices.

*Hypothesis 2:* Extra-role performance will positively predict job performance. Operationally, we intend to test if gender impacts extra-role performance levels, as other studies reported (Nikolaou & Robertson, 1999).

*Hypothesis 3:* The type of environment (controlled vs. inspiring) will have a strong influence over job performance and extra-role performance. Operationally, we expect positive correlations between the inspiring type of working environment and extra-role performance levels.

Overall, we aimed to investigate if the profile of a good performer implies a high competency matching index, high levels of extra-role performance and high scores for persistence. The effect of type of environment on these variables was analyzed.

### 3. Method

#### 3.1. Sample

The subjects were employees of seven medium size Romanian based companies. A number of 200 of the total number of the employees were involved in the study (participation rate was 86.2%; 23 employees refused to participate, and other 9 completed the questionnaires in an invalid manner). The mean age is 42.2 years. From the final sample, 110 persons were employed in the IT&C industry and other 90 in the production sector.

#### 3.2. Procedure

Letters of invitations were sent to all participants by e-mail. The invitation included a brief study explanation and a description of the associated benefits for participants. There were collected ratings for competencies levels, job performance and extra-role performance (from the management), as well as for persistence (from employees). The research was endorsed by management and the participation was voluntarily. Data were collected personally by the author.

#### 3.3. Measures

For competency assessment were have developed ad-hoc *checklists*, based on the data collected by the Competency Elicitation Interviews (Faix et al., 1991). During special management meetings in each company, the management team collectively defined a checklist with competencies for each position/level in the company. We called it the standard required competency; it contains 12 competencies clustered in three categories (technical, methodological and social competencies), scored on four points bars. Then the management was invited to assess the employees' current competencies. A total score was calculated, resulting an overall job competency level, which was compared with a previous calculated standard required competency level for each position. Based on the differences resulted from these comparisons the job competency matching indices were calculated.

Job performance was assessed using Robertson's *Performance Scale*. This measure was successfully used in other studies (Robertson et al., 1998, 1999, 2000) as an overall job performance score, eliciting a high internal consistency reliability ( $\alpha=.86$ ). The scale has 6 items (e.g.: "Achieves the objectives of the job"; "Demonstrates expertise in all aspects of the job") and the supervisor indicates whether he /she agrees or not with the behavior described in a five-point scale. Its application is easy, with an average completion time of 10 minutes.

For *extra-role performance measurement* a scale developed by Smith et al. (1983) was used. It consists of 16 items (e.g.: "Helps other employees with their work when they are absent" or "Does not take unnecessary time off work") where supervisors rate their subordinates on a five-point scale. Using factor analysis with varimax and oblimin rotation, the authors identified two dimensions: altruism and generalized compliance or conscientiousness, which had adequate internal consistency. These results were also tested with similar findings in other studies (Organ & Konovsky, 1989; Becker & Randall, 1994). For the present study an overall score for extra-role performance was used.

Finally, a *Persistence Scale* (Constantin, 2010) measured three persistence factors: current purposes pursuing (CPP), recurrence of unattained purposes (RUP), and long term purposes pursuing (LTPP). It contains 62 items (e.g.: "I easily give up solving a problem that preoccupied me a longer period of time", "I remain motivated in activities that last for months"). The collected data were statistically analyzed with SPSS 17.0 for Windows.

### 4. Results

Table 1 shows the correlation analysis for testing the relationship between job competency and job performance. There are significant correlations between current job competency level, standard required job competency level and job performance level.

**Table 1. Correlation analysis between current job competency, standard job competency and job performance**

	1	2	3	4
1. Current Job Competency Level	1	.570**	.528**	.464**
2. Standard Job Competency Level	.570**	1	-.396**	.252**
3. Competency Matching Index	.528**	-.396**	1	.258**
4. Job Performance	.464**	.252**	.258**	1

Thus, current job competency levels positively correlate with standard required competency levels ( $r = .570, p < .001$ ) and with matching competency index ( $r = .528, p < .001$ ). An expected result was the negative correlation between standard required competency levels and matching competency index ( $r = -.396, p < .001$ ). Moreover, job performance correlates positively with current competency levels ( $r = .464, p < .001$ ), standard required competency levels ( $r = .252, p < .001$ ), and with competency matching index ( $r = .258, p < .001$ ).

To test if competency matching indices (between current job competency and standard required competency) will positively predict job performance we tested four prediction models. The collected data provided us with no evidence that competency matching indices (e.g.: competency matching index, technical competency matching index, methodological competency matching index, social competency matching index) would predict job performance.

Further, we applied a series of statistical formulae to investigate the relationship between three persistence factors (long term purposes pursuing - LTPP, current purposes pursuing - CPP, and recurrence of unattained purposes - RUP) and job performance. Results showed positive correlations between job performance and both long term purposes pursuing ( $r = .384, p < .001$ ), and current purposes pursuing ( $r = .468, p < .001$ ). Additionally, a strong positive correlation between LTPP and CPP ( $r = .491, p < .001$ ) was found.

To evaluate the prediction power of these persistence factors we tested some linear regression models (see Table 2). Thus, from three models tested, results indicate that job performance can be predicted by LTPP ( $b = .38, t = 3.30, p = .002$ ), and CPP ( $b = .37, t = 2.93, p = .005$ ). The RUP is the persistence factor which seems to have no prediction power. Therefore, the first hypothesis is partially confirmed, with LTPP explaining 14% of variance of job performance scores ( $R \text{ square} = .14, F = 10.92, p = .002$ ), and LTPP together with CPP explaining a percentage of 25% ( $R \text{ square} = .25, F = 6.89, p < .001$ ).

**Table 2. Predictors and percentage of job performance variance explained**

Predictor	Percentage
1. Competency matching index	0%
2. Long term purposes pursuing - LTPP	14%
3. LTPP + current purposes pursuing - CPP	25%
4. LTPP + CPP + Current job competency	35%

Surprisingly, when we tested the prediction power of LTPP and CPP joined with competency matching index we found no prediction power of this model, but when testing LTPP, CPP and current job competency level, we obtained a significant prediction model ( $b = .38, t = 3.32, p = .001$ ) with a percentage of job performance variance explained of 35% ( $R \text{ square} = .35, F = 11.18, p < .001$ ).

Operationally, results showed no correlation between competency matching indices and persistence factors. Moreover, there is no significant correlation between current job competency and long term purposes pursuing (LTPP), current purposes pursuing (CPP), or recurrence of unattained purposes (RUP).

When testing the second hypothesis of our study we found a significant positive correlation between extra-role performance and job performance,  $r = .74^{**}, p < .01$ . This fact translates that the employees who display extra-role performance behaviors (e.g.: helping their colleagues, being punctual, taking initiative) are likely to obtain higher job performance scores when being evaluated by their supervisors. For testing extra-role performance prediction power regression analysis was used. Data showed that extra-role performance significantly predicts job performance scores ( $b = .74, t = 7.05, p < .01$ ), by explaining a 55% percentage of variance of job performance scores ( $R \text{ square} = .55, F = 129.33, p < .01$ ). Operationally, we found no evidence to support the results from other studies (Nikolaou & Robertson, 1999) that gender will determine significant differences in extra-role performance levels displayed ( $M_m = 3.86; M_f = 3.82$ ).

Exploring the descriptive statistics for the third hypothesis, we found no effect of type of environment on job performance. However, for extra-role performance we found a significant influence, with employees from a controlled working context receiving lower scores for extra-role performance than subjects from an inspiring working environment. Results suggest (see Table 3) that the employees who are working in the IT&C field, defined as an inspiring working environment, tend to display significantly more helping, volunteering and proactive behaviors. In opposition, the employees from the production field are likely to limit their extra-role behaviors due to the controlled environment settings.

**Table 3. Employees' extra-role performance means differences based on type of working environment**

Variable		M	t	p
Environment	controlled	3.66	-3.37**	.001
	inspiring	4.01		

Furthermore, correlation analysis showed (see Table 4) no relationship between working environment type and job performance,  $r = .18$ ,  $p > 0.05$ , and a strong positive relationship with extra-role performance,  $r = .71^*$ ,  $p < 0.01$ .

**Table 4. Correlations between job performance, extra-role performance and type of working environment**

Variable	Job performance	Extra-role performance
Type working environment	.15	.71**
	>0.05	.00

When testing if extra-role performance together with type of working environment will predict the performance scores, we found no prediction power of type of working environment, with  $b = -.02$ ,  $t = -.40$ ,  $p = .68$ . Thus, we conclude that the third hypothesis is partially confirmed.

Finally, taking into account the prediction power of extra-role performance and persistence factors, we analyzed an overall hierarchical regression model for job performance (see Table 5). Thus, we aimed to see if the profile of a good performer implies a good competency matching index, high levels of extra-role performance and high scores for persistence. Results showed that extra-role performance, together with LTPP, CPP and competency matching index explain a percentage of 38% (R square = .38,  $F = 11.24$ ,  $p < .005$ ), despite of the fact that, previously, extra-role performance alone was explaining a higher percentage (55%) and LTPP with CPP a 25%.

As previously showed, competency matching index alone had no prediction power. This result replicated in this model as well. The current competency level alone was able to predict a percentage of 10% from the variance of job performance scores ( $b = .38$ ,  $t = 3.32$ ,  $p = .001$ , R square = .10,  $F = 16.34$ ,  $p < .005$ ).

**Table 5. Hierarchical regression models**

Predictor(s) of the regression model	Percentage of job performance variance explained
1. Competency matching index	0%
2. Current job competency	10%
3. Long term purposes pursuing - LTPP	14%
4. LTPP + current purposes pursuing - CPP	25%
5. LTPP + CPP + Current job competency	35%
6. Extra-role performance	55%
7. Extra-role performance + LTPP + CPP + competency matching index	38%

## 5. Discussion

The present study investigated the prediction power of job competency, extra-role performance (also known as organizational citizenship behavior) and three persistence factors (current purposes pursuing (CPP), recurrence of unattained purposes (RUP), and long term purposes pursuing (LTPP)) in relationship with employees' job performance. This paper examined research findings from Romania, an Eastern European country and a member of the European Union, where none of these research questions have been explored before.

The results of the current study highlight the importance of extra-role performance, understood as contextual behavior, of motivation for persistence, as choosing behaviours (Campbell, 1993) to pursuit current, long term and unattained purposes, and of current job competency in work settings and more specifically in performance assessment and performance management, confirming that they are valid predictors of supervisory ratings of employees' performance. The hypothesis that job performance would be affected by job competency matching index and the three

persistence factors was partially supported. The results suggest that competency matching index alone is not a valid predictor. Only recurrence of unattained purposes (RUP), and long term purposes pursuing (LTPP) were positive predictors of ratings of job performance and also that they explain variance in job performance above and beyond the effect of competencies (job competency matching index has no prediction power, while current job competency seems to explain a percentage of 10% of job performance variance).

Prior research (Mackenzie et al., 1991; Lowery & Krilowicz, 1996; Nikolaou & Robertson, 1999; Tutu, 2011) has provided evidence that extra-role performance influence the supervisor's ratings when evaluating employees' job performance. The results of the present study replicated the previous findings, contextual behaviors proving to be a valid and powerful predictor of job performance. Some authors (Organ, 1988; Lowery & Krilowicz, 1996) suggested that one reason that extra-role behaviors influence the job performance evaluations could be that these behaviors actually contribute to organizational performance. Another valid reason could be that managers may have preconceived concept of what a good performer do, and extra-role performance may be part of this concept. In the present study it seems that engaging in extra-role behaviours is seen as an important aspect of job performance for managers, sometimes more important than job competencies in the overall assessment.

As far as gender difference is concerned, the present study found no evidence that gender would influence extra-role behaviors, as previous studies suggested (Nikolaou & Robertson, 1999). Moreover, current results support recent suggestions that no gender difference exists in management ratings of job performance (Arvey & Murphy, 1998).

Even if extra-role performance seems to be influenced by an inspiring working environment, results of the present study do not support the idea presented in other studies (Tutu & Ciulu, 2011) that the type of working environment (inspiring vs. controlled) would also affect job performance level.

A limitation of this study is that a large part of the measures have originated from the same source (management ratings), a contamination from common method variance being possible to appear. Furthermore, those who refused to participate they didn't had comparable demographics with those who agreed to participate (90% from the subjects who refused participation were from the production environment), which might indicate a biased sample problem.

The primary attempt of the present study was to examine the combined effect of three important aspects of extra-role performance, persistence and job competency (both competency matching index with a standard required job competency level and current job competency), in the prediction of job performance.

The significance of extra-role performance and two persistence factors (LTPP and CPP) was successfully established, highlighting the important role they have in relationship with job performance. Surprisingly, the matching level between current and required job competencies seems to have no power in predicting job performance. Future research should attempt to explain why this competency matching index seem to have no influence over job performance, while current job competency level alone seems to predict almost 10% of its variance (even if there is a negative correlation between standard required competency levels and matching competency index, which translates in the fact that employees current competencies ratings are sometimes lower than the standard required levels).

As far as the practical implications of this research are concerned, the relationship between job performance, extra-role performance, job competency and persistence is very important both for professionals and for employees. The current recruitment and assessment practices from the Romanian organizational context rely almost exclusively on matching one individual's competencies with some professional competency requirements, ignoring the effect of individual difference. Even if the prediction power of these predictors vary, these findings highlight the importance of extra-role behaviors and choosing behaviours (in terms of motivation to manifest and to maintain effort) in predicting job performance, supporting the idea that job competencies alone are necessary but not sufficient in order to become a good performer. From the employees point of view, these findings could be challenging especially in the Romanian context, in relationship with the new promulgated Romanian Labor Law (2011), which stipulates that the dismissal of an employee should be based on a specific performance assessment.

### **Acknowledgement**

This paper had appeared due to the financial support obtained through the project POSDRU/88/1.5/S/47646, of Alexandru Ioan Cuza University of Iasi, Romania ([www.uaic.ro](http://www.uaic.ro)), co-financed from European Social Fund, through Sectorial Operational Programme for Human Resources Development 2007-2013.

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